



AFW Company response: reference AFW-CE

Securing cost efficiency

30 August 2019

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1 Introduction

1.1 Purpose and structure of this document

The purpose of this document is to set out our response to the draft determination (DD) actions and interventions in relation to '**securing cost efficiency**'.

We list the individual interventions and the actions grouping them in three categories:

We list the individual interventions and the actions grouping them in three categories:

- 'Noted or acknowledged' where we do not seek a change to the interventions made at this stage of the determination process
- 'Representation' where change to the DD is required to achieve the balance of performance and incentives that protects our customers, including where we introduce a new PC
- 'Technical points' where we address technical issues by providing clarification or additional information.

We present, in individual sections, the rationale of our response, the detailed analyses we have carried out and the information we have used in support.

The remainder of this document is structured as follows:

- Section 2: Table of response to interventions and actions
- Section 3: Representation on efficient costs – Growth, grants and contributions
- Section 4: Representation on efficient costs – Leakage reduction
- Section 5: Representation on efficient costs – Retail
- Section 6: Representation on the funding mechanism to deal with a possible WINEP scheme in our Brett region
- Section 7: Representation on metaldehyde, and provides additional information as requested
- Section 8: Technical point on Strategic regional solutions

Additional supporting information is presented in appendices which have been provided alongside this document and are listed in Table .

1.2 Company response overview

We welcome Ofwat's recognition of the cost efficiency of our plan in the level of BOtEX in the DD. The methodology used by Ofwat has been subject to extensive consultation over a long period of time and has enabled the selection of a robust model. We understand that, at the time of DD, the assessment of allowance for growth was preliminary only and not recognising funding requirements in full. Ofwat have issued additional information and a call for data that will enable to firm up costs at FD. This should have no impact on the methodology used for BotEX modelling.

In our response, we acknowledge the further efficiency challenge on some of our enhancement costs in the DD Under **securing cost efficiency**, we had four interventions. We represent on two, and provide additional information as requested for the other two. We have limited our representations to a few areas for the appropriate financing of our efficient costs:

- Allowance for growth funding
- Allowance for transitional costs for leakage reduction
- Retail cost efficiency

- The funding mechanism to deal with a possible WINEP scheme in our Brett region
- Uncertainty mechanism for metaldehyde

In addition to interventions, the DD includes a number of requests for additional information. We provide additional information as requested in section 8.

Wholesale costs

Ofwat has applied a range of efficiency challenges in accordance with its PR19 ‘securing cost efficiency’ methodology, including company specific, shallow dive, deep dive and options appraisal. The Totex costs changes are summarised in the table below

Table 1: Totex breakdown between DD and company response

Totex: gross of grants and contributions, excluding strategic regional schemes (£m)	Totex
DD Totex (£m)	1,321.120
Leakage transitional costs (enhancements)	12.900
Investigations (enhancements)	0.310
Growth	43.370
Represented Totex	1,377.700

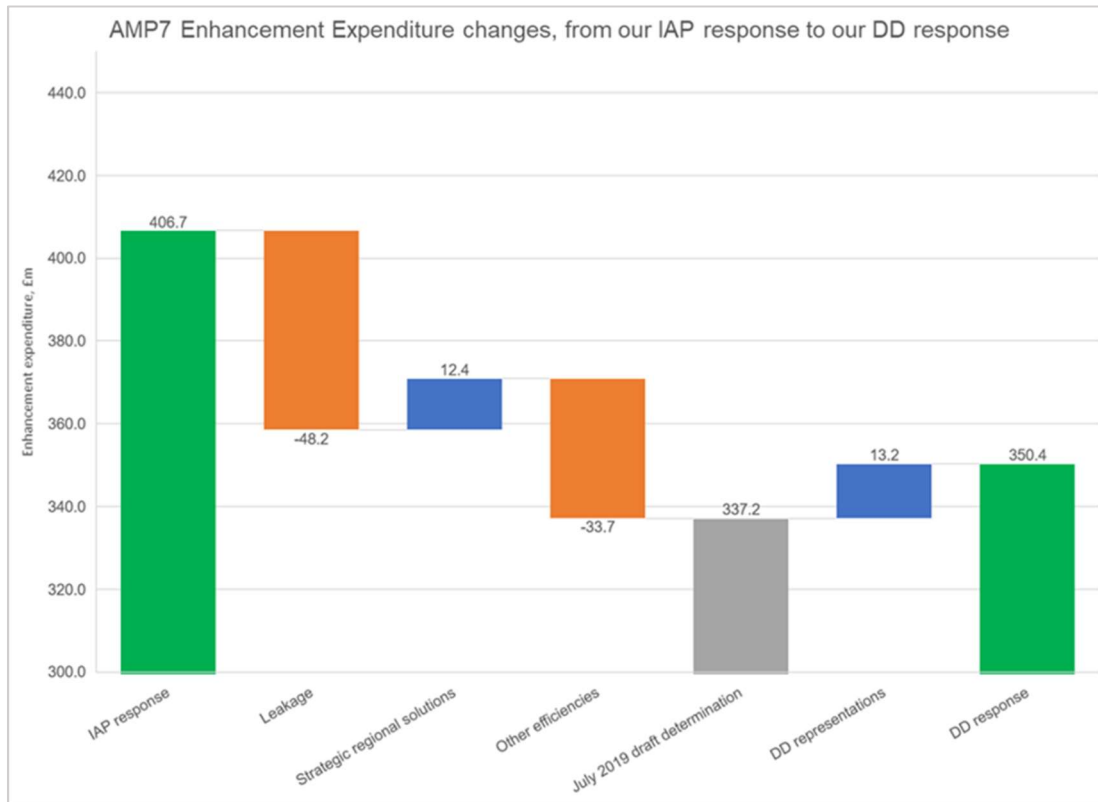
Source: Affinity Water analysis

Changes in enhancement expenditure are summarised in figure 1 below.

Our representation of £13.2m enhancement costs comprises £12.9m for leakage and £0.3m for investigations¹

¹ Ofwat’s investigations enhancement feeder model “FM_E_WW_investigations_ST_DD”, AFW deep dive tab, cell D10 notes: “We apply the company specific deep dive efficiency challenge to set the allowance. PLEASE NOTE - the company efficiency challenge was incorrectly applied in this deep dive in our DD model run, due to the materiality reducing below 0.5%, and therefore will be a shallow dive approach. The correct allowance if nothing changes will be £6.285m at FD).”

Figure 1: AMP7 enhancement expenditure changes, April 2019 to our DD representation



Source: Affinity Water, Ofwat

We present in section 4 the cost analysis supporting our representation for transitional costs required to meet our leakage performance commitment in addition to base costs.

We are concerned that the cost allowance in the DD for leakage is materially lower than the efficient costs needed to deliver our leakage reduction targets. Our analysis argues that there are two primary reasons why the DD understates the allowance. We present our detailed analysis in section 4.

Ofwat has determined that a notified item is not needed for unconfirmed sustainability changes to licences in our East supply region (WRZ8). It has, instead, considered the change with the 'amber' WINEP schemes. However, unlike for 'amber' schemes, Ofwat has not included a totex assumption in our costs, stating that it would make an allowance if the replacement water is needed. Also, Ofwat has used a supply demand unit cost rather than the WINEP / WFD approach (under the WINEP approach the costs would be addressed scheme by scheme).

We note and support that Ofwat recognise the potential sustainability change as an area of uncertainty where there could be a need for us to develop new assets.

We propose alternative delivery mechanisms to manage this risk, using a gated decision process. The delivery mechanism will depend on the scale of the sustainability change required. We propose that the first gate at the point where we will know the scale of the need (i.e. when the investigation and optioneering completes in 2021). This is subject to the EA's agreement and we will need to work in collaboration with them and other stakeholders to develop our proposals further and will provide more information following submission of our response.

We fully support the collaborative approach for the delivery of strategic supply solutions and consider that. We have made technical proposals on the nature of later gates and the reconciliation mechanism, which are aligned with the All Company Working Group (ACWG) statement.

The forecast risks in our WRMP means we need to have a decision on a preferred strategic option in Spring/Summer 2023. This reconciles well with the proposed Gate 3 timing in the DD and we welcome the approach outlined where delays and re-allocations can be handled in a flexible way. However, we also request that Ofwat consider how regulatory mechanisms and funding to start the investigations in 2020 might work in the event that we, or any of our key partners, are delayed in publishing their WRMPs.

We provide confirmation that we have no investment for the treatment or substitution of metaldehyde as requested. The possibility of the metaldehyde ban being in place for AMP7 presents cost uncertainty given our current undertakings which prevent the unrestricted movement of water in our Central region to meet customer demand. We also foresee challenges to the selection and use of strategic regional solutions if the metaldehyde ban is not in place. We therefore represent for the reinstatement of the uncertainty mechanism as outlined in our September 2018 Business Plan. We include the correspondence we have had with regulators since the metaldehyde ban has been overturned.

Retail costs

The DD calculation of Upper Quartile for retail is largely skewed by the use of one company's cost. We believe strongly that the cost model should exclude this outlier and we use the remaining cost average to determine the cost needed for the funding of our retail costs as £145.5m

1.3 Supporting documentation

We provide supporting documentation as appendices which should be read in conjunction with the relevant representation and technical point.

A list of supporting documentation and their relevant representation/technical point are listed in the table below.

Table 2: Supporting documentation for our response to 'cost efficiency'

Document reference	Description	Standalone document	Associated representation/technical point
AFW-CE-Appendix A	Evaluation of relative leakage performance	No	Section 4. Representation: AFW.CE.A1- Transitional costs of leakage
AFW-CE-Appendix B	Background to the possible WINEP scheme in our Brett region	No	Section 6. Representation: AFW.CE.A3 - WINEP uncertainty in our East supply region
AFW-CE-Appendix C	Communication with the DWI on our metaldehyde undertaking – August 2019	No	Section 7. Representation: AFW.CE.A4 – Metaldehyde uncertainty mechanism
AFW-CE-Appendix D	Joint Company Statement	Yes	Section 8. Technical point: AFW.CE.A2- Strategic regional solutions
AFW-CE-Appendix E	Letter AW to DWI – August 2018	Yes	Appendix E. Letter AW to DWI – August 2018
AFW-CE-Appendix F	DWI Guidance to Water Companies Metaldehyde	Yes	Appendix F. DWI Guidance to Water Companies Metaldehyde
AFW-CE-Appendix G	Undertaking on Metaldehyde and Pesticides Parameters	Yes	Appendix G. Undertaking on Metaldehyde and Pesticides Parameters

Source: Affinity Water DD response

2 Table of responses to interventions and actions

The table below presents all actions and interventions relating to 'cost efficiency' and sets out the following:

- Column A sets out the action reference for the individual Ofwat action.
- Column B sets out the intervention area relating to the individual Ofwat intervention.
- Column C sets out where we acknowledge the intervention or seek a change through a representation or technical point. This is denoted as follows:
 - 'A': Acknowledged or noted with no further comments in this document.
 - 'R': A change is required to the DD and therefore we have provided a representation in this document.
 - 'T': Technical issues addressed by providing clarification or additional information as required.
- Column D provides the section reference in this document for those actions that we seek change through a representation or a technical point.

Table 1: Ofwat actions and interventions relating to 'securing cost efficiency'

A. Action reference	B. Intervention Area	C. Response	D. Section reference
AFW.CE.A1	Ofwat's view of efficient costs	R	Sections 3, 4, 5
AFW.CE.A2	Strategic regional solution development	T	Section 8
AFW.CE.A3	Possible WINEP scheme in our Brett region	R	Section 6
AFW.CE.A4	Metaldehyde ban	R	Section 7

Source: Ofwat, Affinity Water

3 Representation: AFW.CE.A1 - Growth

3.1 Purpose of this section

Table 2: Ofwat actions addressed in this section

Action reference	Intervention area
AFW.CE.A1	Efficient costs: Growth

Source: Ofwat PR19 draft determination

This section describes our position on growth.

3.2 Growth

In our IAP response, we projected activity, costs and contributions and we acknowledge the note *Supplementary information for all companies – Grants and contributions* (August 2019) stating Ofwat’s FD methodology which will apply the factor of 1.06 to our costs.

In our response we restate our funding requirements for developer services and grants and contributions.

For the Developer Services Reconciliation Adjustment (DSRA), we understand that previously published tables A1 and A2 no longer apply. Instead Ofwat will base the DSRA on Ofwat’s projected number of new customers, currently 66,122 and a post-efficiency challenge unit revenue per new connection of £1,006. Variances in numbers of new connections compared to Ofwat’s forecast would be trued-up via revenue adjustment at PR24 using these parameters.

We acknowledge the information has shared in its supplementary appendix and conference call of 16th August 2019.

3.3 Conclusion

We support Ofwat’s approach to base totex and the consequential increase in our botex allowance. Our data tables reflect the changes to growth and base totex.

On the understanding of the DD, Ofwat’s supplementary appendix and conference call of 16th August set out in our response, we do not wish to make further representations.

4 Representation: AFW.CE.A1- Transitional costs of leakage reduction

4.1 Purpose of this section

Table 3: Ofwat actions addressed in this section

Action reference	Intervention area
AFW.CE.A1	Efficient costs: Leakage

Source: Ofwat PR19 draft determination

This section provides the evidence for the funding of transitional costs £12.9m required to meet our leakage reduction target.

This section addresses our position on funding for leakage reduction. We set out our views on Ofwat's approach, provide the evidence to support our argument and propose an allowance of £12.9m to meet our leakage target.

4.2 Summary of response

The forecast costs for delivering our AMP7 leakage reduction are [REDACTED]. We have analysed the implicit allowance from continuous improvement in our base costs. Our evidence shows that we will need an allowance of [REDACTED] for the transitional costs required to deliver our AMP7 leakage reduction performance commitment.

4.3 Summary of analysis

We have accommodated £33.7m² of efficiency into our enhancement expenditure between our IAP response and the DD. We have challenged ourselves to deliver our leakage reduction targets as efficiently as possible.

We remain concerned that the allowance in the DD is materially lower than the efficient costs we will incur delivering and sustaining our leakage ambitions.

Our analysis has identified two primary reasons why the allowance is understated in the DD.

1. The historical data from companies used in Ofwat's econometric analysis reflects the actual leakage reductions achieved by those companies in the past. Using companies PR14 FDs, we calculate the industry average performance commitment reduction is 4%. This means that the allowance calculated by the econometric analysis should reflect the upper quartile efficient cost of achieving that historical rate of reduction in leakage. Since the historical leakage reduction rate is materially lower than the targets we have been set for AMP7 (a minimum 15% on a yearly position), it will be necessary, therefore, to allow for the efficient costs of leakage reduction above the historical run-rate. See section 4.5.
2. Companies in their investment planning exhaust the least expensive options available for delivering leakage reduction before selecting schemes at the next cost level. As a result, the efficient costs of maintaining the historical leakage reduction rate increase exponentially as companies approach background levels of leakage. For this reason, even if the target was to maintain the historical leakage reduction rate, the efficient costs would be higher than predicted by the econometric modelling; an allowance for this should therefore be made. See section 4.6.

² Summation of the calculated difference between our April 2019 submission and Ofwat's DD feeder models on each item of our enhancement expenditure.

We note that the assessment of industry upper quartile for leakage may have the unintended consequence of rewarding companies with low connection density.

We remain committed to delivering our leakage reduction targets as efficiently as possible. Our September 2018 Business Plan included efficiencies of 30% on our leakage reduction costs and we have maintained those efficiencies in our IAP response.

4.4 Structure of this response

The remainder of this section is structured as follows:

- Section 4.5 explains what has been accounted for in Ofwat's base totex modelling, and what data Ofwat's econometric analysis would require to be able to allow for efficient leakage reduction costs at levels greater than historical run-rates.
- Section 4.6 presents information on the exponential cost of leakage reduction, including our leakage reduction cost curve.
- Section 4.7 explores Ofwat's approach to the measurement of upper quartile, including our statistical assessment of the explanatory factors to derive the upper quartile.
- Section 4.8 proposes the efficient costs we need to deliver our AMP7 leakage reduction commitment.
- Section 4.9 sets out our conclusions.

4.5 Ofwat's base totex allowance for leakage reduction captures historical costs for historical levels of reduction

We note Ofwat's expectations that companies will fund a substantial leakage reduction in their base totex, where they do not forecast to be beyond upper quartile in AMP7. Ofwat has advised that "Base allowance [is] considered to cover reductions up to 15% and less than upper quartile performance."³ Our customer engagement activities demonstrate strong support for continuing to reduce leakage, as we must be seen to "do our bit" before we ask customers to save water⁴.

Ofwat's cost models are calibrated on historical rates of reduction in leakage and do not account for the step-change required in leakage reduction in AMP7. The historical leakage reduction rate is significantly lower than the companies' targets for AMP7.

In its overview of the PR14 price review, Ofwat allowed leakage reduction performance commitments for selected companies of between 1% (Portsmouth Water) and 14% (Affinity Water)⁵. Our analysis of the PR14 FD company specific appendices calculates that the industry average leakage reduction performance commitment was 4%. Table 4 presents the leakage reduction performance commitments by company at PR14, including the industry average performance commitment reduction.

³ Ofwat, *Supply-demand balance enhancement: Feeder model summaries*, January 2019

⁴ AFW Business Plan, Appendix 3, *Listening to Customers and Stakeholders*, September 2018

⁵ Ofwat, *Setting price controls for 2015-20 – overview*, December 2014

Table 4: Industry leakage reduction performance commitments at PR14⁶

Company	PR14 leakage reduction performance commitment ⁷
Affinity Water	14%
Anglian Water *	0%
Bournemouth Water	7%
Bristol Water	10%
Cambridge Water *	0%
Dee Valley Water *	0%
Dwr Cymru Welsh Water	8%
Essex & Suffolk Water *	0%
Northumbrian Water *	3%
Portsmouth Water	1%
Severn Trent Water *	6%
South East Water	5%
South Staffs Water *	0%
South West Water *	0%
Southern Water *	1%
Sutton & East Surrey Water	2%
Thames Water	9%
United Utilities *	0%
Wessex Water *	5%
Yorkshire Water *	3%
Average % reduction	4%

* Calculated % reduction from each FD company specific appendix. All other figures as quoted in Ofwat's Setting price controls for 2015-20 0 overview, pages 16 and 17, December 2014

Source: Ofwat, *Affinity Water*

The March 2019 NERA report⁸ presents analysis of Ofwat's Stata Input datafile for water and concluded "half of all companies have increased or reduced leakage by less than 3 per cent over the 2011/12 – 2016/17 period". Information about companies' reported leakage on the Discover Water website shows that the industry's average performance has remained static for the last three years⁹.

Ofwat set expectations that the industry should deliver at least a 15% reduction in their leakage in AMP7¹⁰. In section 4.6, we present information on our leakage reduction costs, which includes evidence of non-linear unit rates and therefore it will be necessary to allow for the efficient costs of leakage reduction above the historical rates of reduction.

⁶ Ofwat, *Setting price controls for 2015-20 – overview*, December 2014; Ofwat, final determination company specific appendices, December 2014

⁷ Figures as quoted in Ofwat's Setting price controls for 2015-2020 overview, pages 16 and 17, December 2014. For other companies, calculated % reduction from each FD company specific appendix.

⁸ NERA Economic Consulting report *Assessing Ofwat's Funding and Incentive Targets for Leakage Reduction*, 26th March 2019, page 13

⁹ Discover Water, leaking pipes page, previous years tab, industry average 2016/17 to 2018/19

¹⁰ Ofwat, *Delivering Water 2020: Our final methodology for the 2019 price review*, December 2017

4.6 The cost of leakage reduction

Leakage reduction costs are not linear.¹¹ The NERA report¹² states “marginal costs tend to increase as leakage reduction targets become more stretching”. In planning expenditure companies to deliver the most cost efficient leakage options first. As the least cost options are exhausted, companies deliver the leakage reduction options at the next cost level. Leakage reduction therefore becomes incrementally more expensive. The overall relationship is that costs increase exponentially with leakage reduction as background levels of leakage are approached.

There are different cost levels within types of leakage reduction options. As an example, in AMP6, we have delivered 20MI/d of pressure reducing valve (PRV) schemes for █████ (unit rate █████ per MI/d). We completed the lowest cost options first. We will deliver a further 3MI/d of cost beneficial PRV schemes in AMP7, with an estimated cost of █████ (unit rate █████ per MI/d). On completion, we will have a fully pressure managed network, with no more PRV options available. We will deliver the balance of our AMP7 leakage reduction target through customer supply pipe repairs and improved active leakage control (ALC).

We set challenging efficiency targets in the preparation of our Business Plan (please refer to section 10.3.7 of our September 2018 Business Plan for a summary of our wholesale cost efficiencies totalling £195m). As noted in section 10.3.7, we appointed Oxera to help us understand the level at which the totex allowance for the wholesale service could be set for 2020 to 2025, and to benchmark our relative position. Oxera’s analysis encouraged us to consider the level of efficiency in our base costs and how we would deliver them. Our September 2018 Business Plan included a 30% efficiency in all leak detection and repair costs as part of £129.1m wholesale opex efficiencies¹³. We have maintained that 30% efficiency in our April 2019 IAP response. As explained in section 4.5, we remain concerned that the DD allowance for our leakage reduction is insufficient, and, therefore, represents a further efficiency challenge on our costs, in addition to the frontier shift.

We engaged external experts (RPS) to develop leakage cost curves for our PR19 Business Plan and WRMP. Our ALC cost curves have been generated using the industry recommended practice of UKWIR method B. UKWIR method B produces marginal cost curves from observed detection and detected repair costs to identify transitional and maintenance costs at target leakage levels. The proportional split between transitional and maintenance costs changes over the reduction level. It will be different for different companies dependent on their position relative to their sustainable economic level of leakage (SELL) and local circumstances.

For Affinity Water, in AMP7:

- the **transitional** component of our cost curve is approximately **40%** of the total cost. Transitional costs represent the work needed to deliver a leakage reduction. These are additional activities that represent an additional cost, for example employing more staff to detect, verify and repair more leaks.
- the **maintenance** component of our cost curve is approximately **60%** of the total cost. Maintenance costs represent a continuous activity required to maintain the new, lower level of leakage. The lower our level of leakage, the higher the costs to maintain that lower level as we will detect and repair more smaller leaks.

¹¹ UKWIR report *Best practice for the derivation of leakage cost curves in economic level of leakage analysis*, 22nd November 2011; UKWIR report *Managing Leakage*, 21st September 2011

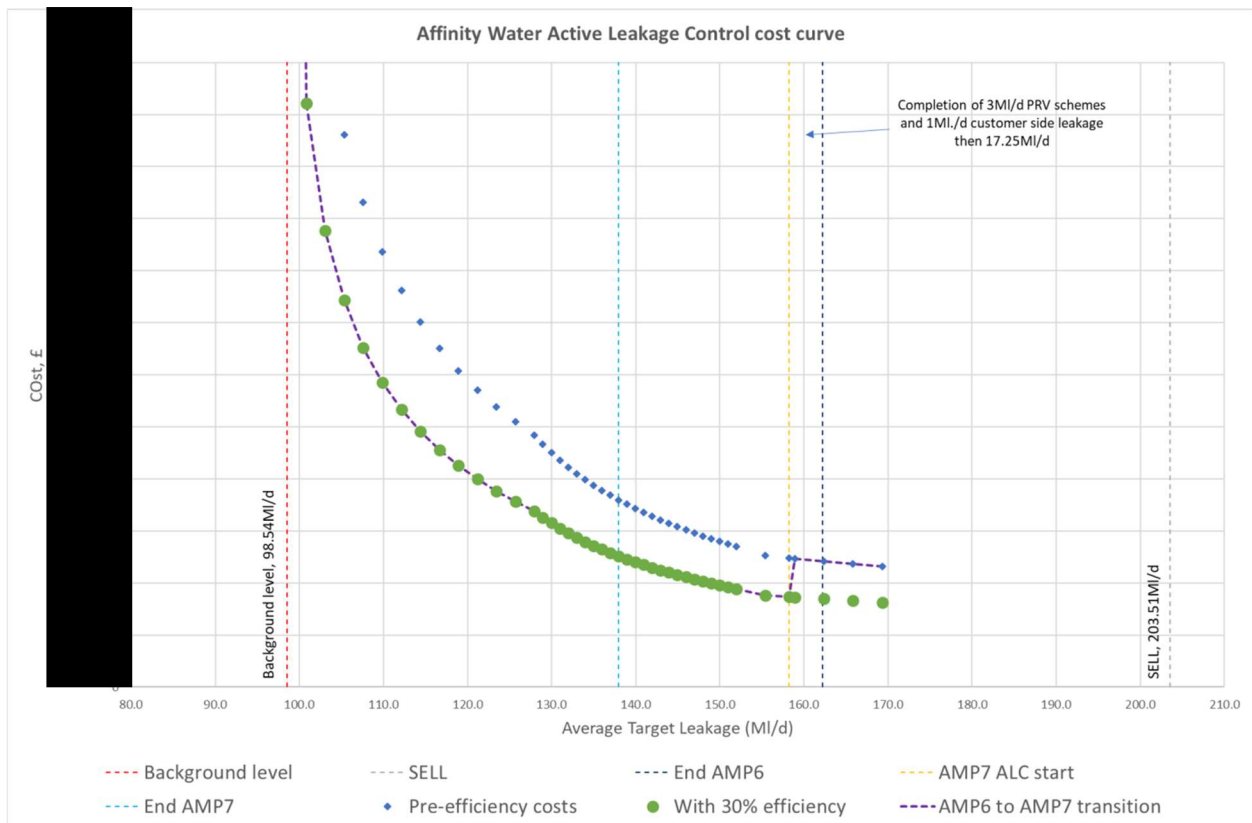
¹² NERA Economic Consulting report *Assessing Ofwat’s Funding and Incentive Targets for Leakage Reduction*, 26th March 2019, page 16

¹³ Affinity Water Business Plan, section 10.3.8: *Opex efficiency initiatives*, September 2018

For more detail of our AMP7 leakage reduction strategy, please refer to our Final WRMP *technical report 4.8: Leakage Strategy* (June 2019, which will be updated following the Secretary of State’s approval to publish our WRMP).

Figure 2 presents the total costs for us to reduce and maintain leakage at lower levels by ALC, inclusive of the 30% efficiency we described above. The yellow dashed line represents our ALC ‘start’ position in AMP7 (after delivery of the remaining 3MI/d of PRV schemes and 1MI/d of customer supply pipe leakage). The blue dashed line represents our end AMP7 target of 137.95MI/d. We also present our SELL (203.51MI/d, grey dashed line) and background level of leakage (98.54MI/d, red dashed line).

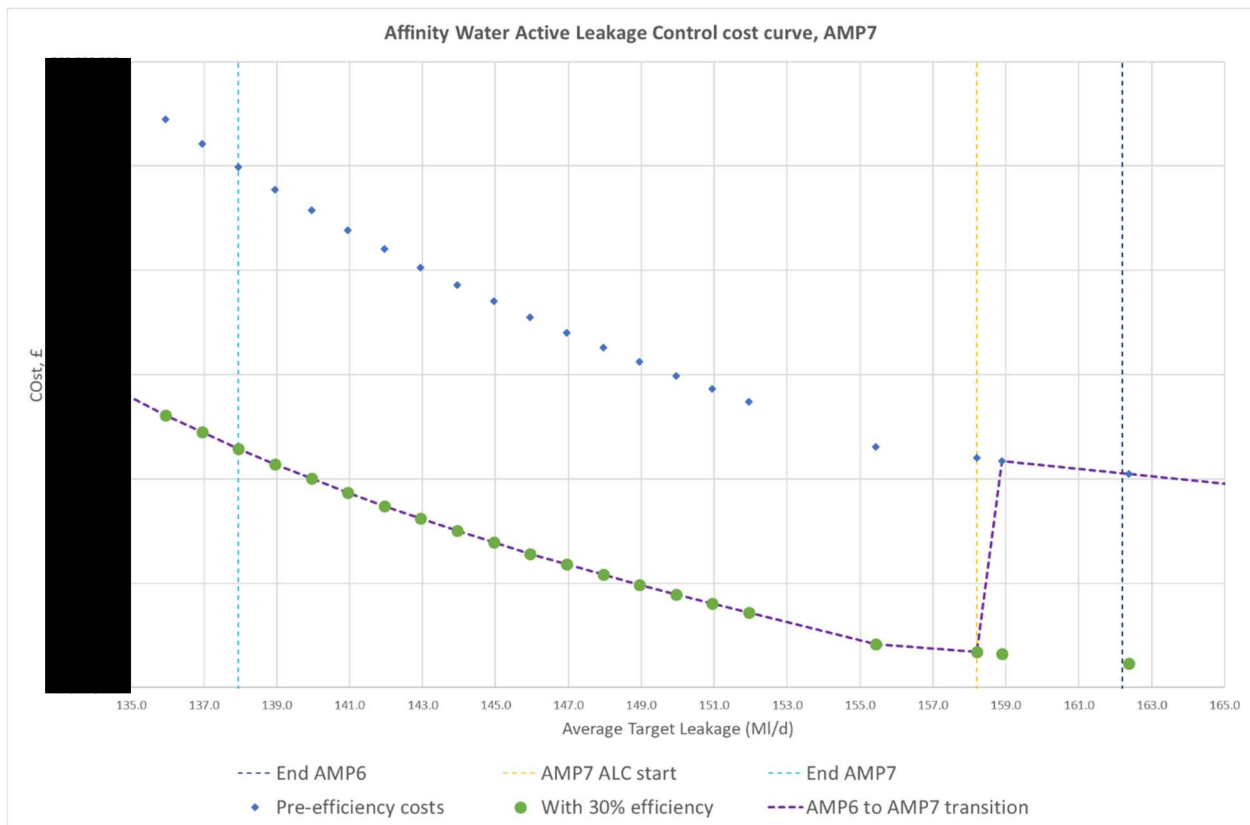
Figure 2: Affinity Water ALC cost curve



Source: Affinity Water

Figure 3 presents Figure 2 with an increased scale to show our AMP7 leakage reduction.

Figure 3: AMP7 Active Leakage Control reduction cost curve



Source: Affinity Water

4.7 The explanatory factors of upper quartile assessment

We have one of the highest density networks in the UK. Our network of pipes increased greatly after World War Two, with the expansion of the suburbs of London and the advent of new towns in the Home Counties. With this came issues arising from different pipe materials, quality of workmanship of pipe installation, and a high number of smaller service pipes and joints associated with the high property to pipe length ratio. We are of the view that, in our case, the relationship between leakage and property density is stronger than the relationship between leakage and length of mains.

In Table 5, we present water company connection density.

Table 5: Water company connection density, largest to smallest

Rank	Company	Connection density (Connected properties per km mains)
1	Thames Water	126.19
2	Portsmouth Water	96.98
3	Affinity Water	91.43
4	South Staffs / Cambridge Water	87.74
5	Sutton & East Surrey Water	85.03
6	Southern Water	80.83
7	Bristol Water	79.73
8	United Utilities	79.17

Rank	Company	Connection density (Connected properties per km mains)
9	Essex & Suffolk Water	78.98
10	Severn Trent Water	78.25
11	Yorkshire Water	72.92
12	South East Water	69.54
13	South West Water	58.06
14	Anglian Water	57.62
15	Wessex Water	52.41
16	Dwr Cymru Welsh Water	52.13
17	Hafren Dyfrdwy	40.19

Source: Affinity Water, Ofwat data share

It is notable that the six companies with the highest connection density are distant from Ofwat's assessment of upper quartile on leakage per kilometre mains. The seventh, Bristol Water, is only just inside the upper quartile assessment for leakage per kilometre mains. With the exception of Bristol Water, the other four companies above the upper quartile measure of leakage per kilometre mains are ranked 12th or lower in the table of connection density (green shading). South West Water and Wessex Water are close to upper quartile on leakage per kilometre mains but also have low connection density. This suggests that using leakage per kilometre mains to identify upper quartile could have the unintended consequence of 'rewarding' companies with low connection density.

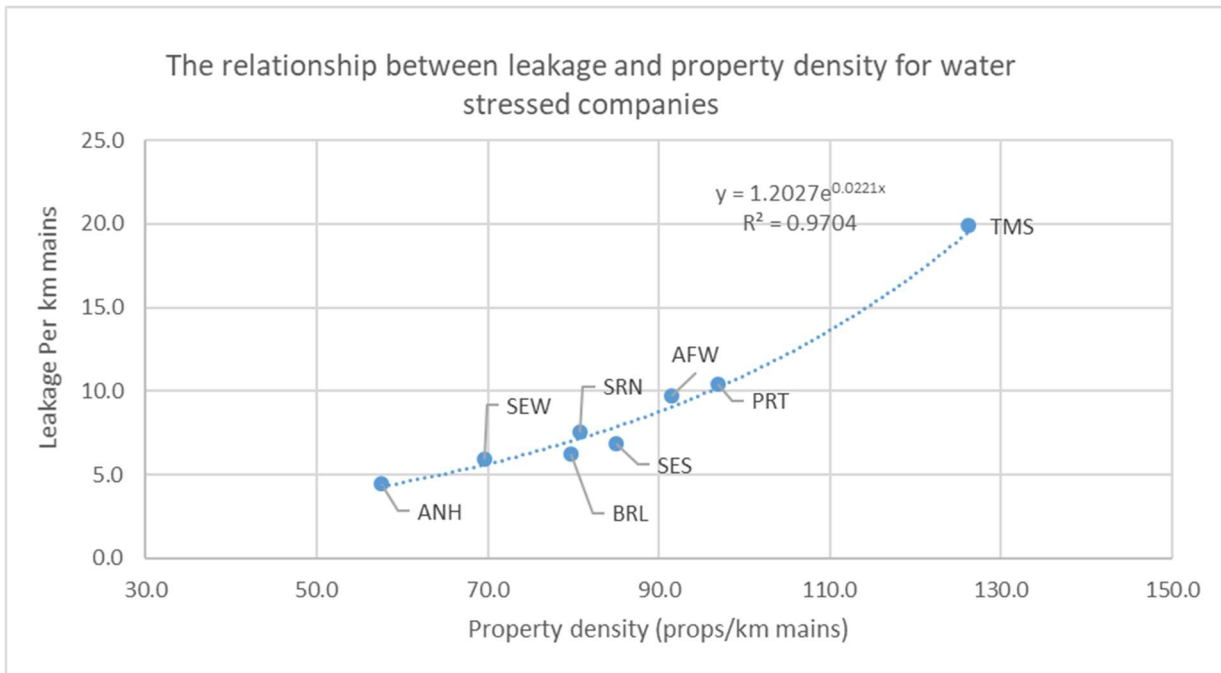
In its position statement on leakage¹⁴, the Chartered Institution for Water and Environmental Management (CIWEM) recognises that "the impact of leakage varies greatly between and within areas supplied by individual water utilities, and leakage measures for individual systems need to be judged on several criteria." Further, CIWEM "supports the conclusion of a 2015 EU Reference Document¹⁵ that there is no single leakage performance indicator that is suitable for all purposes, and measures used should be fit for the particular purpose. For expressing targets and tracking progress, MI/day and litres/property are traditionally used in the UK; m³/km mains is acceptable for very low connection densities."

We have performed statistical analysis of company circumstances to understand our position relative to others and the explanatory factors of performance, which we provide in appendix A in this document. Our analysis demonstrates that there is a strong correlation between leakage and connection density. We identify a relationship between leakage, connection density and water stress. Companies that are water-stressed will likely have embarked on a programme of leakage reduction as part of their supply / demand balance management. Figure 4 demonstrates that our leakage position is very slightly below the industry average for water stressed companies with our end of AMP6 leakage reduction target.

¹⁴ CIWEM, policy position statement *Water distribution system leakage in the UK*, June 2015

¹⁵ European Commission, EU Reference document *Good Practices on Leakage Management*, January 2015

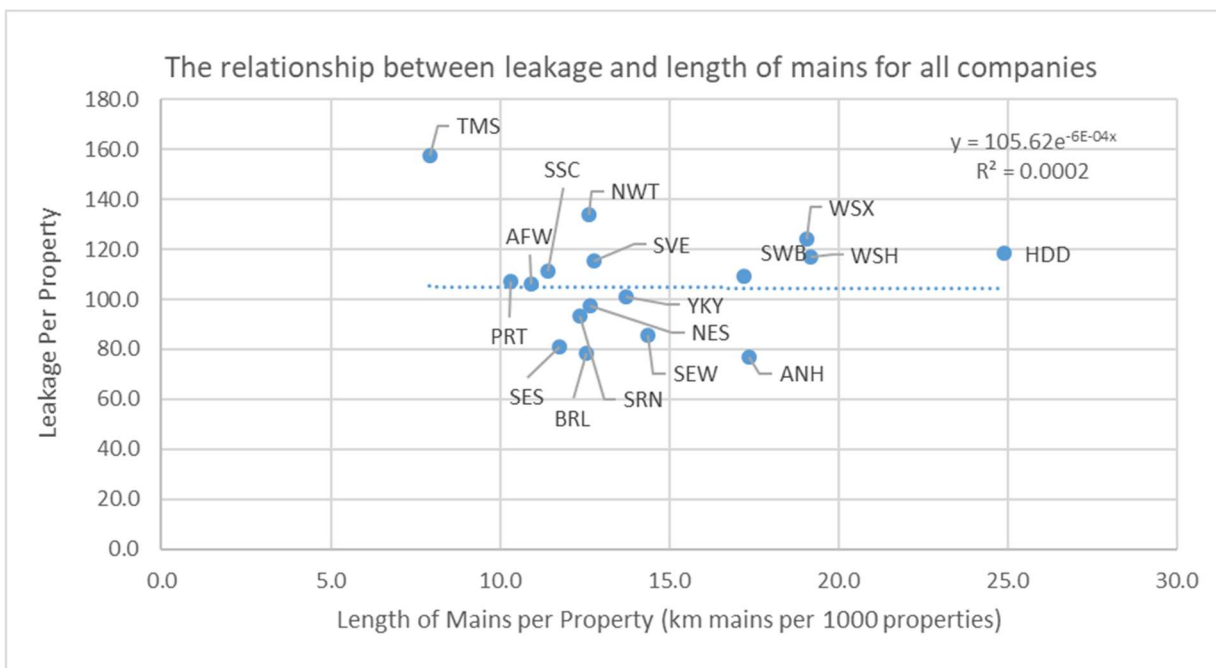
Figure 4: the relationship between leakage and property density for water stressed companies



Source: Affinity Water

The relationship between leakage and length of mains is negligible. Figure 5 presents the length of mains as an explanatory factor for leakage variability for all companies.

Figure 5: the relationship between leakage and length of mains for all companies



Source: Affinity Water

We represent that one single leakage performance indicator cannot be reliably used to assess upper quartile performance, and that multiple factors should be taken into account. We would be pleased to work with Ofwat in AMP7 to develop an approach to upper quartile assessment for leakage that considers a wider range of explanatory factors.

4.8 Our proposal for the efficient costs of our leakage reduction

We have explained that our AMP7 leakage reduction costs are already inclusive of a 30% efficiency from our AMP6 costs. We have calculated the total cost to achieve our revised leakage target is [REDACTED]. This cost includes 40% 'transitional expenditure' and 60% 'maintenance' of the lower level of leakage.

We remain concerned that Ofwat expects companies to “achieve the largest actual percentage reduction... since PR14”, and that the costs to achieve this enhancement should come from companies' base totex allowance. As explained in the NERA report, “Ofwat’s base allowances fail to consider that more demanding [performance commitments] are associated with more expensive leakage reduction schemes”¹⁶.

By using historical costs, Ofwat’s base cost modelling is unable to predict the required expenditure to achieve greater levels of leakage reduction. As demonstrated in Figure 2, our leakage reduction costs are not linear. It will therefore cost us more to deliver and maintain each increment of leakage reduction in AMP7 and more than it cost to deliver our AMP6 leakage reduction. The NERA report offers a suggestion for Ofwat to “revise its ‘gated’ approach to allowing companies’ claims for enhancement expenditure to reduce leakage in a way that provides funding for them to bridge the gap between their proposed PCs and the levels of leakage reduction activity conducted historically.”¹⁷

We present analysis that demonstrates a poor relationship between leakage and length of mains in the assessment of upper quartile performance.

We consider there is a strong case for allowing the efficient costs of a step-change in leakage reduction. Our detection and repair costs are already inclusive of a 30% efficiency on our current costs. We are prepared to incorporate a further efficiency to the value of our AMP7 maintenance costs, which we will find through more effective ways of working and innovation. Given the activities necessary to move to a new lower level of leakage need additional resources, we therefore require transitional expenditure of [REDACTED] to achieve our AMP7 leakage reduction performance commitment.

4.9 Conclusion

We remain committed to delivering our leakage reduction targets as efficiently as possible. Our September 2018 Business Plan included efficiencies of 30% on our leakage reduction costs and we have maintained those efficiencies in our IAP response.

Including the 30% efficiency, the expected costs for delivering our AMP7 leakage reduction is [REDACTED]. Our modelling shows that we will require an allowance of [REDACTED] for the transitional costs required to deliver our AMP7 leakage reduction performance commitment.

4.10 Supporting documentation

Table 6: Evidence to support our response

Reference	Description	Standalone document
AFW-CE-Appendix A	Evaluation of relative leakage performance	No

Source: Affinity Water DD response

¹⁶ NERA Economic Consulting report *Assessing Ofwat’s Funding and Incentive Targets for Leakage Reduction*, 26th March 2019, page 15

¹⁷ NERA Economic Consulting report *Assessing Ofwat’s Funding and Incentive Targets for Leakage Reduction*, 26th March 2019, page 26-27

5 Representation: AFW.CE.A1 - The efficient costs of retail

5.1 Purpose of this section

Table 7: Ofwat actions addressed in this section

Action reference	Intervention area
AFW.CE.A1	Efficient costs: Retail service

Source: Ofwat PR19 draft determination

In the DD, our retail allowance has been set at £139.6m, £5.9m lower than our April IAP response of £145.5m.

The section describes our position on residential retail cost efficiency and our retail allowance.

5.2 Summary of response

Ofwat's approach to setting efficient retail cost is based on the efficiency cost modelling of average past performance and future commitments. The results are skewed by outlier companies (in particular Southern Water) and there is a lack of evidence historical performance to support future business plans.

We are representing to re-instate our costs to address the risk to our ability to deliver customer service levels. This represents a difference of +£5.9m with the DD for retail cost base.

5.3 Structure of this representation

- Section 5.4 presents our assessment of companies' efficient costs.
- Section 5.5 proposes our view of the efficient costs of our residential retail service.
- Section 5.6 sets out our conclusions.

5.4 Our assessment of companies' efficient costs

We acknowledge that for the DD the efficiency challenge has been based on the average of past performance and future commitments. We welcome this move from the IAP, however we believe that this approach still contains a large element of delivery risk given the size of the step changes from historical cost performance that some outlier companies are proposing. We acknowledge that the retail control can change its cost base at a greater pace than the wholesale control and believe we have factored this into our plan, with the greatest step change occurring in year 1. We have serious concerns over the ability to sustainably deliver the size of the cost reductions that the AMP7 predicted upper quartile companies are proposing without significant deterioration to customer service levels.

Table 8 shows efficiency scores in retail totex business plans as detailed in FM_RR1_ST_DD, compared to historical efficiency scores as detailed in FM_RR2_ST_DD.

Table 8: Efficiency scores in retail totex business plans compared to historical efficiency scores

Company	Efficiency score - business plan	Rank - business plan	Efficiency score - historic performance	Rank - historic performance	% change in efficiency score
Yorkshire Water	0.703	1	0.801	1	-12%
Southern Water	0.762	2	1.427	17	-47%
South East Water	0.781	3	0.902	7	-13%
Hafren Dyfrdwy	0.789	4	1.022	9	-23%
Severn Trent	0.790	5	0.885	6	-11%
South Staffs Water	0.797	6	1.045	13	-24%
Bristol Water	0.830	7	0.881	5	-6%
Anglian Water	0.851	8	0.848	2	0%
Affinity Water	0.871	9	1.039	12	-16%
United Utilities	0.890	10	1.161	14	-23%
Portsmouth Water	0.894	11	0.983	8	-9%
Northumbrian Water	0.929	12	0.855	3	9%
South West Water	0.950	13	1.031	10	-8%
Wessex Water	0.958	14	0.876	4	9%
Thames Water	0.972	15	1.036	11	-6%
Welsh Water	1.082	16	1.268	16	-15%
Sutton & East Surrey Water	1.169	17	1.180	15	-1%
Upper quartile	0.790		0.881		

Upper Quartile (average change 21.2%)

Source: Affinity Water

The top five companies in the above table, that are driving the upper quartile efficiency threshold, are on average proposing changes of greater than 21% on their current efficiency scores. We note that only one company within the upper quartile of planned retail totex is currently delivering upper quartile cost efficiency within the industry (Yorkshire Water).

We believe that companies that are currently leading the way in retail cost efficiency are best placed to drive the efficient frontier forwards. When submitting plans for cost efficiency, companies must make certain assumptions on the level of realisable cost reductions each initiative can produce. We believe that the companies that are delivering cost efficient performance levels can base these future assumptions on demonstrable past performance and can therefore be considered stronger assumptions. The efficient threshold for AMP7 is however being predominantly driven by some outlier companies that are currently classed as inefficient based on historical performance. Therefore, a larger than average proportion of the upper quartile plans are based on assumptions that can be considered untested and therefore at greater risk of delivery.

There is an element of delivery risk inherent in the level of cost reductions proposed by each company, in both benefit realisation and to service levels. This is a risk that each company has weighed up and must bear in delivering their plans. To enforce the most extreme 25% of these plans on all companies is to hold the industry to account to deliver plans that they had no input in calculating based on assumptions they have not fed in to.

We believe that the level of change being proposed by several companies pushes the frontier efficiency threshold to a level that is impossible to achieve without introducing measures that risk severely damaging service levels and customer experience, such as offshoring our contact centres or reducing the scale of our customer vulnerability plans.

5.5 Our proposal for the efficient costs of our residential retail service

Our residential retail plan has been built using detailed, bottom up projections of our cost base and cost drivers and includes what we believe to be extremely challenging initiatives to drive down our cost to serve and to deliver a step change in the experience we provide to our customers, as detailed in our plan.

We greatly increased the size and scope of the cost reductions within these initiatives in our IAP response and stand by these cost projections to deliver an efficient and high performing residential retail

service. To increase the scale of this any further cannot be achieved without significantly jeopardising the service we offer to our customers.

We have therefore resubmitted table R1 for £145.5m, which is unchanged from our IAP response.

5.6 Conclusion

Whilst we welcome Ofwat's approach to setting efficient retail cost based on the efficiency challenge of past performance and further commitments, we consider this has been skewed by outlier companies whose historical performance provides no evidence to support their future business plans.

We have undertaken detailed bottom up analyses of our cost base and cost drivers, including extremely challenging initiatives.

We stand by these cost projections and therefore restate our IAP response retail cost base of £145.5m.

6 Representation: AFW.CE.A3 - WINEP uncertainty in our East supply region

6.1 Purpose of this section

Table 9: Ofwat actions addressed in this section

Action reference	Intervention area
AFW.CE.A3	WINEP uncertainty Representing on the mechanism to fund amber sustainability reductions in Brett.
AFW.RR.A4	WINEP uncertainty Representing on the mechanism to fund amber sustainability reductions in Brett.

Source: Ofwat PR19 draft determination

Ofwat has determined that a notified item is not needed for unconfirmed sustainability changes to abstraction licences in our East supply region (WRZ8). It has, instead, considered the change with the 'amber' WINEP schemes. However, unlike for 'amber' schemes, Ofwat has not included a totex assumption in our costs, stating that it would make an allowance if the replacement water is needed. Ofwat has used the supply demand balance unit cost it has applied across the industry for DD rather than the WINEP approach. Under the WINEP approach the costs would be addressed scheme by scheme.

6.2 Summary of response

The risk faced around this potential sustainability change presents a substantial financial challenge for us if it were to materialise, which we will need to address through an appropriate mechanism. This mechanism needs to be acceptable both to us and Ofwat. Our view is that three options (bespoke ODI, potential DPC or potential strategic resource) all have the potential to work. It is not appropriate to choose one option until the investigation has completed and we understand the scale of the risk.

- A bespoke ODI (option 1) could offer a fair solution if all of the following are satisfied:
- The sustainability change were needed,
- It triggered investment in replacement water, and
- This investment turned out to be sub-scale for a regional solution and/ or DPC.

The regional resources options and DPC (options 2 and 3, potentially combined) are more viable for potential sustainability changes across multiple companies and at the top of the volume range.

One approach could be to introduce a gate test in 2021 to decide whether there is a need to proceed. And if there is a need, whether to use a bespoke ODI or the strategic resource and/or DPC option. Our current view is that gate 1 would take place in 2021 once the investigation and options appraisal are completed.

We ask Ofwat to consider our preferred options (i.e. a bespoke ODI, strategic regional option development and DPC) for the FD and we would welcome further discussion about a potential resolution. Given that we would like to discuss the mechanism with Ofwat, we have not made any changes to our data tables (e.g. the DPC table) at this stage.

6.3 Structure of this response

The remainder of this section is structured as follows:

- We summarise the issue and our current position in section 6.4.
- In section 6.5 we set out evidence relating to the use of supply demand balance unit costs.

- Section 6.6 provides evidence that capping the maximum volume at 11.21 MI/d is inappropriate
- Section 6.7 introduces our appraisal of alternative delivery mechanisms and sets out the options we considered.
- In section 6.8 we establish criteria for assessing the options
- In section 6.9, we assess the options against the criteria
- Section 6.10 presents the conclusions of our options appraisal and preferred approach.

Appendix B of this document sets out further background to the issue.

6.4 Our current position

We note and support that Ofwat recognise the potential sustainability change as an area of uncertainty where there could be a need for us to develop new assets.

Ofwat has capped the assumed cost at its view of the efficient supply demand balance costs (at the DD, Ofwat considers this to be £1.2m per MI/d). Our view remains that the unit cost is likely to be substantially higher than £1.2m per MI/d, given that our initial estimate of the potential costs was in the order of £110-115m for 20 MI/d. This is because our initial assessment suggested there would be limited options should the maximum change be required, the situation in the resources zone is complex, and the lead time to deliver could be limited.

In our IAP response, we set out that the £110-115m translates to indicative unit costs of £3.26m per MI/d for a change of 2.6-4.6 MI/d and £6.67m per MI/d for sustainability changes of 4.6-20 MI/d. As we set out in our IAP response (response to action AFW.RR.A4) the unit cost for 2.6-4.6 MI/d reflects that we can accommodate a change up to 2 MI/d within our existing surplus, but that we would need to treat the water – hence the unit cost reflects the cost of upgraded treatment. We have more limited options to accommodate a larger change and this is reflected in the unit cost for 4.6-20 MI/d.

We are committed to ensuring that the environment is protected and are completing the required investigation working with the Environment Agency and the two other companies involved. This is underway – we will complete the investigation and options appraisal by 31 March 2021. Until we complete the investigation we will not know the scale of the risk. If the investigation concludes that a change is needed, we will work with the WRE, Environment Agency, Ofwat and other stakeholders to find the best value solution in the required timescale through our optioneering process for WINEP schemes. The possible change is not accounted for in our current WRMP (although it is mentioned as a risk) so we would also need to prepare a revised WRMP to address the change in our East.

Nonetheless, we believe there is highly likely to be a gap between the £1.2m per MI/d unit cost and the potential unit cost if a larger sustainability change were required. Our initial estimate is that this could be as much as £100m, but could be less depending on the outcome of the investigation, the options available to us and the timescale. Given the uncertainty over the outcome of the investigation, our proposed rate remains the same as at the IAP response (i.e. £3.26m per MI/d for a change of 2.6-4.6 MI/d and £6.67m per MI/d for sustainability changes of 4.6-20 MI/d).

We have not re-performed a RoRE analysis given that we are no longer seeking a notified item. We represent an indicative comparison of the revised cost exposure above with our IAP response for completeness. Assuming a 50:50 cost sharing rate¹⁸, we would need to finance a maximum of c. £50m totex. This is similar to the £52m exposure we cited in our IAP response and therefore the maximum RoRE exposure would be of similar scale to the value quoted in our IAP response. Our IAP response set out a RoRE downside 1.01%, including the 50% recovery from customers.

¹⁸ This is consistent with the Ofwat DD approach to RoRE assessment for totex (the Aligning Risk and Return Technical Appendix states the following on p17: “We have retained the 50% cost sharing of over/underperformance against our baseline cost allowances assumed by companies in their plans for the water resources and network plus controls.”)

6.5 Use of average unit rates

We question whether the level of the unit rate applied and whether the use of the unit rate for supply demand balance is appropriate here, given that this is effectively the extension of a WINEP scheme for Water Framework Directive compliance.

The WINEP replacement water schemes that Ofwat has allowed have been built up from the project cost on a case by case basis. Hence, we would question why the supply demand balance unit rate is appropriate or whether it is consistent with Ofwat's approach to other similar schemes (examples are set out in Table 10 below).

If we need to scope a replacement water scheme, we would continue to use our bespoke WINEP unit cost model developed by Mott MacDonald. This would allow a project build approach with contractor and other efficient unit costs, using the same arrangements for assuring the data and for procurement as we did when preparing our IAP response. Ofwat notes in the Water Framework Directive feeder model¹⁹ that this approach "appears systematic and comprehensive". The solution would then be included in a revised supply demand balance assessment for the East supply region. This could involve considering longer run options (as the water resources planning approach looks for the long run least cost solution).

Following a review of Ofwat's approach at DD, there are multiple individual investments that have a higher unit cost than Ofwat has used for investments that provide water resources either to address a sustainability change or to address a supply demand imbalance (sized up to around 20 MI/d). Hence, we challenge whether the use of £1.2m per MI/d is appropriate in this case. Our circumstances are similar to other companies where Ofwat allowed for higher unit costs in that we have limited available options should a large sustainability change be needed, and we expect the delivery to be complex given that we are likely to need to deliver the change over a short lead time.

The table below sets out some examples of Ofwat allowances for similar sized WINEP replacement water, supply demand and DPC investments allowed in the DD (comparable either with our 2.6-4.6 MI/d unit cost or our 4.6-20 MI/d unit cost). We also set out the unit costs of the strategic regional schemes, recognising that there is a regional dimension to the potential sustainability change.

¹⁹ Source: Ofwat, July 2019: FM_E_WW_water-framework-directive_ST_DD. Tab: "Deep dive_AFW"

Table 10: Capacity and costs of comparably sized replacement water (WINEP) and supply demand balance schemes

Resource	Capacity (MI/d)	Cost (£m)	Implied unit cost (£m per MI/d)
WINEP 'amber' schemes			
Thames Water: Alleviation of low flows – Chess (inc. full revocation of abstraction licence at Hawridge)	6.9 (peak) ²⁰ 6.8 (average)	38.859 ²¹	5.632
Thames Water: Bexley alleviation of low flows (Cray and Darent)	9.0 ²²	30.388 ²³	3.376
Supply Demand Balance (starting in AMP7)²⁴			
Portsmouth Water: Havant Thicket winter storage reservoir²⁵	21.0	121.500	5.786
Anglian Water SHB2a-Pyewipe Water Reuse for Non-potable use - treatment	6.0	25.825 ²⁶	4.304
Southern Water Coastal Desalination - Shoreham Harbour	10.0	35.000 ²⁷	3.500
Supply Demand Balance (Long term investments)²⁸			
South East Water: Broad Oak Reservoir	19.6 ²⁹	104.030	5.308
South East Water: New Arlington Reservoir	16.1 ³⁰	129.530	8.045
Strategic water resources³¹			
Fawley desalination plant	75.0	255.000	3.400
South East strategic reservoir option (SESRO)	294.0	2,028.6 ⁰⁰	6.900
Thames - Southern transfer	30.0	250.000	8.333
River Itchen effluent reuse	75.0	322.500	4.300
Minworth effluent reuse	115.0	494.500	4.300

Sources: Ofwat Draft Determination, company WRMPs, company revised business plans, Affinity Water analysis of unit costs

6.6 Capping the maximum volume

We acknowledge that there would potentially be some mitigation in place from our existing available headroom. This would cover a small licence change only, and is why we provide two unit costs relating to different sizes of potential sustainability change. We do not provide any unit cost for a change less than 2.6 MI/d as we assess that a change of this scale could be accommodated.

²⁰ Source: Thames Water WRMP

²¹ Source: Thames Water Cost efficiency draft determination appendix. The costs reflect Ofwat's draft determination assumption. Thames Water view of the costs was £50.406m

²² Source: Thames Water WRMP

²³ Source: Thames Water Cost efficiency draft determination appendix. The costs reflect Ofwat's draft determination assumption. Thames Water view of the costs was £39.478m

²⁴ Unless stated otherwise, source: Ofwat Draft Determination SDB feeder model.

²⁵ Source: Ofwat Draft Determination for Portsmouth Water. Ofwat allowed, Portsmouth Water DD, noting that the need for Havant Thicket has been triggered by a sustainability change required in Southern Water's operating area.

²⁶ The text in the feeder model suggests that Ofwat did not apply a specific challenge to this scheme.

²⁷ Includes Ofwat scheme-specific challenge. Ofwat states that "Overall in terms of £m/MI/d construction cost the unit cost for the non-highlighted of schemes is greater than the industry median unit cost for non-leakage schemes in the period 2020-25. However this reflects the longer lead time, the limited available options and the complex delivery of some of these schemes."

²⁸ Unless stated otherwise, source: Ofwat Draft Determination SDB feeder model.

²⁹ Source: South East Water Final WRMP

³⁰ Source: South East Water Final WRMP

³¹ Source: Ofwat strategic regional schemes feeder model

We question whether the 11.21 MI/d cap is appropriate in this case because we believe the deployable output change could be larger than the required licence change. The sources impacted by the investigation are fed into Horsley Cross water treatment works where they are blended with water from other sources. The issue is around the quality of a proportion of the borehole water that blends with the surface water. A large sustainability change would be concentrated on the unconfined sources, which have the better water quality and provide a blend for the poorer water quality. Hence, we believe the deployable output impact could be as high as 20 MI/d even if the licence change is smaller.

The table below sets out our updated view of the situation based on our draft final WRMP published in June 2019. The surplus has improved since we submitted our IAP response because of a change in water available from Ardleigh (the background is explained further in Appendix B). We have included the impact with and without a requirement to include 2.16 MI/d of river support that may be formalised in our licence (and therefore in our deployable output). It remains to be clarified with the Environment Agency whether the river support requirement is included or excluded from the maximum licence change.

We present analysis for the dry year annual average plan only because the smaller surplus in the annual average forecast is driving the maximum deficit.

Table 11: Potential volume impact of the maximum sustainability change (dry year annual average)

MI/d	Dry Year Annual Average
Maximum licence change	(15.91)
Surplus/ (deficit)	5.69
Maximum change less surplus	(10.22)
Assuming river support is additional	(2.16)
Maximum change, factoring in flow support	(12.38)
Our assessment of the potential impact of needing additional blending water at Horsley Cross	(7.62)
Potential worst case impact on deployable output (due to loss of water for blending at Horsley Cross)	(20.00)

Sources: AFW Draft Final WRMP tables and AFW analysis

We will investigate mitigations for the 20 MI/d maximum impact during the optioneering stage (if a larger licence change is needed). If replacement water can be treated to the same quality as the existing high quality borehole water, we would be able to maintain our blending arrangements and the impact would be lower (at best related to the maximum licence change less zonal surplus because we replace the blending water like with like). However, we have yet to test this – we would do so during the options appraisal process once the investigation has completed. We would also investigate whether it would be better value to introduce more complex treatment processes at Horsley Cross (and build a new resource alongside) or to build a larger new resource without changes to treatment.

Our change in arrangements at Ardleigh further complicates the situation because it would introduce surface water that is of lower quality than the sources being blended at Horsley Cross. Hence, it may be necessary to reduce our abstraction from the poor quality confined boreholes, which would lower their effective deployable output and would require us to provide additional blending water (over and above the volume suggested by maximum licence change less zonal surplus). The location of the replacement water source may also be a factor in whether blending is the most economic option given that the cost of transfer mains would need to be included.

The volume requirement could also be impacted if there is a need for a wider regional solution (given that three companies are party to the investigation) with the costs and benefits of any regional scheme shared across the affected companies. We have held initial discussions with WRE, who have indicated that they would be willing to undertake a regional options assessment following the results of the investigation into the River Brett sources.

The volume impact will remain uncertain at the FD given that the investigation completes in 2021.

If the DO change exceeds our existing surplus, the amount of replacement water would need to be decided through preparing a revised WRMP to address the change in our East Region, optioneering through our WINEP optioneering process and then accounting for the replacement water in our WRMP. This process would establish the best value solution that is in line with industry best practice.

Ofwat appears to be treating the potential change partly as though it were a WINEP scheme and partly as though it were a supply demand balance scheme. We think that the treatment of this scheme should be consistent. We represent that the potential change should be treated as if it were part of the WINEP, although not funded up front given the uncertainty. It is effectively an extension of an existing 'amber' scheme.

Given that a potentially substantial risk to cost and level of service to our customers remains, we have sought to explore whether there are alternative options for delivery that would meet regulatory requirements while mitigating the risks.

6.7 Alternative delivery options appraisal

Sections 6.8 - 6.10 form an appraisal of alternative means of handling the uncertainty through the AMP7 regulatory framework:

- In this section, we set out the alternative options we considered.
- In section 6.8 we set out how we established criteria for the suitability of the options we considered.
- Section 6.9 sets out our assessment of the options against our criteria.
- We set out our conclusions in section 6.10.

We considered the following potential options:

- Ofwat DD approach
- Bespoke ODI to recover the difference in efficiently incurred costs during AMP7 if the risk materialises
- Potential delivery via DPC (if a larger regional scheme were of sufficient scale)
- Potential for a strategic regional resource or strategic regional solution
- Ofwat DD approach using a higher unit cost
- Use of transitional arrangements at PR24

Some of the options have the potential to be used in combination – for example a strategic regional solution could be delivered via DPC. This is further explored in section 6.10.

6.8 Criteria for suitability

We took the view that the criteria would still correspond most closely to Ofwat's criteria for assessing an uncertainty mechanism, even though Ofwat has determined a different treatment to help manage the risk.

Ofwat states the following in the final methodology:

“Companies should set out the management actions they have taken and will take to manage the uncertainty, as well as the range of approaches considered when preparing their business plans, and the impacts of those approaches.”³²

³² Ofwat, December 2017 “Delivering Water 2020: Our final methodology for the 2019 price review” p171.

Hence, we have considered whether the options assessed would give us appropriate incentives to manage the risk.

We considered the Ofwat 'deep dive' gate tests. 'Need for investment' is not established at this stage because there is only a possible need. The ongoing investigation into the impact of our abstraction will establish whether there is a need (and the scale of the potential need) irrespective of the delivery option. We consider, also, that Ofwat has recognised that there is a possible need in its treatment of the potential change.

We have not considered 'need for adjustment' because we are not putting this risk forward as a cost adjustment claim.

We considered 'management control' to apply to our ability to mitigate the risk rather than the delivery mechanism (where we consider all of the options could fall within our control). We will establish the environmental need (which is not in our control) through the investigation currently underway. As stated above, we have negotiated a change in the water we can take from Ardleigh as a mitigation that could cover a smaller sustainability change.

'Robustness and efficiency of costs' cannot be established at this stage because, if needed, optioneering will be part of the investigation we are currently undertaking, and will depend on the scale of the potential change. The optioneering process would also establish the 'best option for customers' based on our WINEP optioneering and costing methodology. Both of these gates will be addressed irrespective of the delivery mechanism.

We see it as a high priority to test whether the mechanisms we put forward are likely to provide sufficient customer protection, particularly ensuring that customers do not need to pay more than they have to. Hence, we have included customer protection as a criterion. If we need to prepare a revised WRMP we would engage with customers in our East Region as part of revising the plan, following a process for challenge to our customer engagement that would be in line with our WRMP19 (e.g. with respect to CCG involvement).

Our Board would provide assurance over a revised WRMP should it be needed (in line with the process undertaken for our full WRMP19). The investigation and its potential impact is a substantial risk to our business that we take very seriously. It has, and will involve oversight from our Board throughout. This would happen irrespective of the delivery mechanism, hence we have not included it as a criterion.

We then considered whether there were other factors we should test against that reflect the specific circumstances relating to this issue. Firstly, given that the scale of the issue is not clear at the current time, the extent to which an alternative approach would be adaptable to different levels of risk is a consideration.

It is important to us that a delivery mechanism is structured in a way that helps us maintain our financial resilience. The DD sets our financeability ratios on the notional basis at the credit rating agencies' threshold value for investment grade (e.g. adjusted interest cover rate). The implication of this is that we have no capacity for cost shocks or uncertainties in our plan. We are committed to improving our long term financial resilience and it will be important to us to develop a delivery mechanism that does not result in an increase to our gearing.

Finally, the time available to deliver the sustainability change is a practical factor we need to consider, recognising that a regional solution would take time to agree. For DPC, we may need additional time to procure finance for the project. We will discuss the deadline for compliance with the Environment Agency if a larger volume of replacement water is needed, but at this stage we cannot guarantee that there would be an extension to the current WINEP deadlines for sustainability changes.

Our assessment led us to the following criteria for suitability of an alternative mechanism:

- Customer protection

- Whether the option offers appropriate incentives for management.
- Financing considerations
- Whether the option is scalable to different possible outcomes for the sustainability change
- Time horizon

6.9 Assessing the options

We assessed each option against each of the criteria. We applied a four colour ranking scale (red, amber, yellow, green). We ranked the options according to which ones had the largest number of green scores. See Table 12.

Table 12: Alternative mechanisms assessment

Option	Customer protection	Management incentives	Financing	Scalable	Time horizon	Rank
Bespoke ODI	As the unit cost can vary with the scale of the change, customers would not pay more than they need to. Testing of 'best option for customers' could be included. Score: green	The ODI could build in a test to demonstrate that our costs are efficient, giving us incentive to manage our risk. Other 'gate tests' could be built into a bespoke ODI – e.g. using the Ofwat 'deep dive' test gates. Score: green	We would need to recover the costs during AMP7 given that the RORE impact is material. Score: yellow	This option is highly scalable because the unit cost can be varied for different scheme sizes. Score: green	This mechanism is less likely to result in additional lead time. Hence, we do not anticipate that it would put pressure on compliance deadlines. Score: green	1
Potential DPC	DPC presents an opportunity for efficient financing and delivery. Hence, the cost to customers could be lower than if the scheme were delivered by the company. Score: green	The impact on our incentive to manage the risk is likely to be neutral. We would need to procure the scheme in a way that mitigates risk to customers. A DPC scheme would be subject to governance from Ofwat. Score: green	DPC would need to be structured to avoid an increase to our gearing. (E.g. use a proxy RCV with zero return if the scheme needed to be accounted for as a finance lease.) Score: yellow	DPC would be suitable for a large licence change either for Affinity Water only or for a strategic regional scheme. If the scheme size were smaller, DPC could become unfavourable to potential investors. Score: amber	DPC would take more time to procure than delivery by the company (due to the need to procure project finance). DPC is unlikely to be feasible if delivery is required by 2024, Score: amber	3
Potential strategic resource	Customers would benefit through more efficient regional allocation of resources, which should mean customers would not pay more than they need to. Score: green	Use of a gated regional resources arrangement (albeit on a smaller scale than the large strategic resources arrangements Ofwat has provided for) would build in tests for us to demonstrate that the costs incurred are efficient, giving us incentives to manage our risk. Score: green	We would need to recover the costs during AMP7 given that the RORE impact is material. Score: yellow	This should be scalable as regional resources do not have to be large. Agreeing a regional resource is potentially more straightforward at lower volumes, given that the available options/ surplus among the three companies involved is relatively limited. Score: green	A regional resource (especially if this is a shared resource) would take more time to agree. This option is least likely to be feasible for a large licence change where delivery is required by 2024. A smaller regional scheme could be more feasible. Score: amber	2
Ofwat DD approach with a higher unit cost	This approach risks either over-funding or under-funding the risk, given that it is difficult to predict the unit costs in advance. Score: red	A fixed cost approach is unlikely to incentivise us to deliver efficiently. If the cost is set too high, we may not be incentivised to operate efficiently. If it is too low, we may be incentivised to operate at risk. Score: red	We would carry the cost until PR24. This would create significant risk around our financial resilience, given that the RORE impact is material. Score: red	A single unit cost is not scalable. The cost allowance could turn out to be too high if a smaller licence change is needed, or too low if a larger volume is needed. Score: red	This mechanism is less likely to result in additional lead time. Hence, we do not anticipate that it would put pressure on compliance deadlines. Score: green	5

Option	Customer protection	Management incentives	Financing	Scalable	Time horizon	Rank
Transitional arrangements at PR24	Customers would be exposed to higher risk if the solution were deferred to the end of AMP7. This option is only workable if Ofwat could accommodate transitional arrangements earlier in AMP7. Score: red	Transitional arrangements would involve a test that the costs incurred are efficient, through the PR24 process. Score: green	We would carry the cost until PR24. This would create significant risk around our financial resilience, given that the RORE impact is material. Score: red	We would know the exact scale of the investment by the time we submit our PR24 Business Plan, hence this option is likely to be scalable. Score: green	Deferral to the end of AMP7 would not enable us to meet the required timescales. Score: red	4
Ofwat DD approach	Insufficient funding to address a potential change therefore customers likely to be exposed to risk. Score: red	Allows costs that will not address the need. Management may be incentivised to delay any required scheme into AMP8. Score: red	We have no capacity to absorb cost shocks, hence this is not workable. Score: red	A single unit cost is not scalable. The cost allowance is too low. Score: red	This mechanism is less likely to result in additional lead time. Score: green	6

Source: Affinity Water

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6.10 Conclusion

The risk faced around this potential sustainability change would present a substantial financial challenge for us if it were to materialise, which we will need to address through an appropriate mechanism. This mechanism needs to be acceptable both to us and Ofwat. Our view is that the first three options (i.e. bespoke ODI, potential DPC or potential strategic resource) all have the potential to work. It is not appropriate to choose one option until the investigation has completed and we understand the scale of the risk.

A bespoke ODI (option 1) could offer a fair solution if all of the following are satisfied:

- The sustainability change were needed,
- It triggered investment in replacement water, and
- This investment turned out to be sub-scale for a regional solution and/ or DPC.

The regional resources options and DPC (options 2 and 3, potentially combined) are more viable for potential sustainability changes across multiple companies and at the top of the volume range.

One approach could be to introduce a gate test in 2021 to decide whether there is a need to proceed. And if there is a need, whether to use a bespoke ODI or the strategic resource and/or DPC option.

If we introduced a gated regional solution, it could follow a similar structure to the regional strategic resources solution that Ofwat announced with the IAP, addressed through WRE, and potentially with governance through RAPID³³. Similar to the large scale regional resources, a gated process would give us appropriate incentive to develop a regional solution within an appropriate timescale.

Our current view is that gate 1 would take place in 2021 once the investigation and options appraisal are completed. To pass gate 1 would require the following actions to be completed:

- Investigations completed
- Conclusion of need
- Initial assessment of options completed
- Timescale for implementation agreed with Environment Agency
- Refined view of technically feasible options given the required timescale
- Establish delivery route
- Establish efficient costs and therefore funding requirement

The scale of the issue and the required timing for any potential solution would determine both the timing and the content of gates 2-5. We anticipate that the stage gates would take a similar form to the arrangements being put in place for the large strategic regional resources schemes. However, the detailed gate tests would need to be defined at gate 1 once there is clarity around the options and the broad requirements for delivering the options being considered (e.g. the likely requirements for planning permission).

We ask Ofwat to consider our preferred options (i.e. a bespoke ODI, strategic regional option development and DPC) for the FD and we would welcome further discussion about a potential resolution. Given that we would like to discuss the mechanism with Ofwat, we have not made any changes to our data tables (e.g. the DPC table) at this stage.

³³ The Regulatory Alliance for Progressing Infrastructure Development (RAPID) unit.

6.11 Supporting documentation

Table 13: Evidence to support our response

Reference	Description	Standalone document
AFW-CE. Appendix B	Background to WINEP uncertainty in our East supply region	No

Source: Affinity Water DD response

7 Representation: AFW.CE.A4 – Metaldehyde uncertainty mechanism

7.1 Purpose of this section

Table 14: Ofwat actions addressed in this section

Action reference	Intervention area
AFW.CE.A4	Allowance: Metaldehyde specific treatment or substitution costs

Source: Ofwat PR19 draft determination

This section sets out our response to action AFW.CE.A4, in which Ofwat asked us to provide evidence that no metaldehyde specific treatment or substitution costs are included in our requested allowance. The request for evidence was made on 18th July 2019, which was prior to Defra’s decision published 31st July 19 to withdraw the proposed restrictions on the sale and use of metaldehyde.

We represent on the reinstatement of our metaldehyde uncertainty mechanism from our September 2018 Business Plan to address the removal of the metaldehyde ban.

7.2 Response to information request

We confirm we have no metaldehyde specific treatment or substitution costs in our requested allowance. We provide details of the correspondence we have had with the Environment Agency and the DWI following the metaldehyde ban being overturned.

7.3 Summary of representation response on metaldehyde uncertainty

The reversal of the metaldehyde ban on 31st July 2019 presents risks to our business that cannot be mitigated by management response. The DWI’s position on undertakings and the ‘no deterioration’ principle restricts our ability to move water in our supply area. We risk the creation of stranded assets and could incur costs to prevent this. As Defra intends to retake the ban, we have not included any costs in our investment portfolio.

However, in the event the ban is not retaken or is unsuccessful, we are representing for the reinstatement of the metaldehyde uncertainty mechanism as set out in our September 2018 Business Plan.

7.4 Structure of this section

The structure of this section is as follows:

- Section 7.5 confirms we have no metaldehyde specific treatment or substitution costs in our requested allowance.
- Section 7.6 presents our representation for the reinstatement of the metaldehyde uncertainty from our September 2018 Business Plan.
- Section 7.7 presents the correspondence we have had with regulators following the metaldehyde ban being overturned.

7.5 Confirmation of no metaldehyde specific treatment or substitution costs

Per action AFW.CE.A4, Ofwat states “no intervention required for DD but further action needed by the company.” Ofwat requests that we “provide evidence to confirm DWI agreement with [our] submitted plans/revised undertakings and that no metaldehyde specific treatment or substitution costs are included in the requested allowance.”

We confirm we have no metaldehyde specific treatment or substitution costs in our requested allowance.

We append a copy of our undertaking that we submitted to the DWI on 22nd July 2019 which included measures required to mitigate the risk of metaldehyde, and which requires funding as part of our cost allowance. These measures relate to catchment management rather than water treatment or product substitution and will be required irrespective of the Government position on the metaldehyde ban.

Since the submission of the Undertaking to DWI and prior to a Judicial Review of the metaldehyde restrictions, Defra has withdrawn the decision to apply restrictions to the sale and use of metaldehyde. Our business plan was predicated on there being restrictions for the sale and use of metaldehyde.

7.6 Metaldehyde uncertainty

We are re-instating the uncertainty mechanism in respect of metaldehyde that we included in our September 2018 Business Plan in our August 2019 DD response.

We also propose that metaldehyde treatment at Iver water treatment works (WTW), Egham WTW, Chertsey WTW, Walton WTW and Sundon Reservoir is included as a notified item to the extent that the bespoke uncertainty mechanism proposed by us is not included in Ofwat's Final Determination or does not recompense us fully for the efficient costs we incur during AMP7 in respect of these uncertainties.

We have changed our position with regard to the metaldehyde uncertainty mechanism in response to developments in relation to Defra's implementation of a metaldehyde ban. At the time of submitting our April 2019 IAP response, we were satisfied that the risk of the potential need for investment in treatment for metaldehyde had been mitigated by the ban on sale and use of metaldehyde implemented in December 2018.

At the end of July 2019, Defra announced that the ban on sale and use of metaldehyde had been set aside following a legal challenge. We understand from communications from the Environment Agency and the DWI that Defra intends to re-take the decision but we have no certainty regarding timescale for this decision. We also believe, on the basis that the ban has been successfully challenged once, that there is a risk of further legal challenge of any future decision that is taken.

We welcome Defra's confirmation that its intention remains to implement a ban and in reliance on this we are not providing for any metaldehyde treatment in our requested allowance. We believe, however, that the risk created by the uncertainty regarding timescale for implementation of the ban and the potential for further legal challenge needs to be addressed in our DD response because of the significance of this risk for our investment plans.

The uncertainty regarding the metaldehyde ban creates risk for two of our key investments:

- Our plan to import more water from Grafham WTW, treat the water at Sundon and supply it into areas not previously supplied with this water; and
- Our proposed strategic transfer programme (Supply 2040) to move water further north from our treatment works on the River Thames and supply it into areas not previously supplied with this water.

The presence of metaldehyde could also impact on our ability to use water from Arleigh WTW more widely in order to support delivery of sustainability reductions in our Brett community.

If a ban is not forthcoming, then we would need to install metaldehyde treatment in order to realise the benefits of these key investments. The reason for this is that to supply water containing metaldehyde in excess of 0.1 ug/l into areas not previously supplied would be a breach of section 68 of the Water Industry Act 1991. This is unless DWI is willing to accept an undertaking in respect of such supply, which would be contrary to its current policy.

Section 68 of the Water Industry Act 1991 provides that a water undertaker has a duty in relation to water supplied for domestic or food production purposes:

- (a) To ensure that any water so supplied is wholesome at the time of supply.
- (b) So far as reasonably practicable, to ensure, in relation to each source or combination of sources from which water is supplied, that there is, in general, no deterioration in the quality of water which is supplied from time to time from that source or combination of sources.

Water is “*wholesome*” if it meets the standards prescribed in Regulation 4 of the Water Supply (Water Quality) Regulations 2016. The standards prescribed include those presented in Table 15.

Table 15: Water Supply (Water Quality) Regulations 2016 – Regulation 4 and Schedule 1

Item	Parameter	Concentration or value (maximum)	Unit of measurement	Point of compliance
20	Other pesticides	0.1	µg/l	Consumers' taps

Source: Water Supply (Water Quality) Regulations 2016

We are currently permitted to supply water containing metaldehyde into specified water supply zones pursuant to undertakings given under section pursuant to section 19(1)(b) of the Water Industry Act 1991.

We are currently permitted to supply water containing metaldehyde into specified water supply zones pursuant to undertakings given under section pursuant to section 19(1)(b) of the Water Industry Act 1991.

The undertakings given in 2014 provide for delivery of schemes of work to achieve compliance with the metaldehyde standard of 0.1µg/l. The schemes of work were to undertake catchment management activities and, in the case of North Mymms WTW additionally to install treatment. We are permitted to supply water containing metaldehyde in excess of 0.1 µg/l into the zones specified while these undertakings are in place.

Our current undertakings are summarised in Table 16 below.

Table 16: Affinity Water current undertakings

Water Treatment Works	Parameters	Water supply zones	
North Mymms	Individual pesticide and total pesticides	Z023 Hatfield/Potters Bar Z050 Barnet	Z051 Friern Barnet Z054 Finchley
Ardleigh	Metaldehyde, clopyralid and total pesticides	Z073 Mixed Zone	Z074 Surface Zone
Chertsey	Individual pesticide, including metaldehyde, and total pesticides	Z066 Woking	Z069 Pirbright/Send
Egham		Z063 Southall Z064 Bagshot / Sunninghill Z065 Ashford	Z084 Feltham Z086 Staines
Iver		Z047 Ickenham/Denham Z048 Northwood/Ruislip Z050 Barnet Z051 East Barnet Z054 Finchley Z055 Rayners Lane Z056 Harrow Z057 Colindale/Kingsbury	Z059 Uxbridge Z060 Yeading Z061 Greenford/Northolt Z062 Wembley Z085 West Drayton Z087 Ruislip Z089 Sudbury Z090 Hayes
Walton		Z067 Weybridge/Woodham	Z068 Walton

Water Treatment Works	Parameters	Water supply zones	
Grafham (Anglian Bulk Supply)	Metaldehyde and total pesticides	Z014 Codicote Z015 Knebworth/Tewin	Z029 Luton North Z030 Luton East
Hanningfield, Langham and Layer (Essex & Suffolk Water Bulk Supply)	Metaldehyde and total pesticides	Z071 Pilgrims Hatch	
Ashford Common and Kempton Park (Thames Water Bulk Supply)	Metaldehyde and total pesticides	Z058 Hampstead Garden Suburb	

Source: Affinity Water

We submitted revised undertakings to the DWI on 22nd July 2019 (Appendix G). These undertakings were formulated on the basis that the metaldehyde ban had been implemented. DWI wrote to us on 6th August 2019 to advise that, in the light of the withdrawal of the metaldehyde ban, it was discontinuing the process of revising metaldehyde undertakings until there is further clarity regarding the situation. DWI advised that the current undertakings would remain in place for the time being (Appendix C).

One option to address the issue would be to extend these undertakings to cover the additional water resource zones that would receive water from Grafham water following installation of conditioning treatment at Sundon and from our water treatment works on the River Thames following delivery of strategic transfer schemes.

This would, however, be contrary to DWI guidance in relation to section 68(1)(b), which it has produced to explain this requirement in the context of planning (Appendix F). This guidance explains that the duty in section 68(1)(b) may impact on transfers of water within a company's supply area and for exports and imports across company boundaries. It provides two overarching principles in relation to this duty:

- that the company should not expose consumers to a greater risk of exposure to unwholesome water; and
- that the company must always plan to meet its water quality obligations (paragraph 4.3.3).

The DWI Guidance explains that the standard of no deterioration should be measured by reference to compliance with the standards of wholesomeness (paragraph 4.3.6). Paragraph 4.3.7 specifically states:

“Proposals to transfer water that increase the risk of non-compliance, or of consumer complaints about the aesthetic character of the water supply, such as by taste and/or odour, discolouration, nitrates, pesticides or bacteriological challenge, will not be permitted until steps to mitigate those risks are in place.”

DWI's policy is, therefore, that it will not accept undertakings in relation to supply of water containing metaldehyde to areas that have not received such water on the basis that there should be no deterioration in the quality of water supplied.

We wrote to the DWI on 7th August 2018 to explain the issue and to seek DWI's view regarding its willingness to review existing undertakings in relation to metaldehyde to extend the geographical area to which they relate. This was in essence a request for DWI to flex its policy position in the light of uncertainty regarding the targeted metaldehyde ban and the specific investment risk we are facing (Appendix E). We have not received a response to this letter to date. We have not pursued this with the DWI because implementation of the metaldehyde ban meant it was no longer relevant but will now do so in the light of withdrawal of the ban.

In the absence of a metaldehyde ban, and given DWI's policy position regarding extension of undertakings, there is a significant risk that we could have to install metaldehyde treatment to avoid significant stranded investment.

The cost of this treatment would be very significant. The totex in respect of metaldehyde treatment should we need to install it are set out in Table 17 below. This is unchanged from our September 2018 Business Plan.

Table 17: Metaldehyde treatment costs

Site	Treatment	AMP7 Totex (£m)	Volume (MI/d)
Iver	Upgrade Existing Actiflos, 2 new Actiflo-Carbs, RGFs	31.53	227
Egham	2 new Actiflo Carbs (on site of sed plant)	22.203	145
Chertsey	2 new Actiflo-Carb units to treat raw river water	18.279	In above
Walton	2 new Actiflo-Carb units to treat raw river water	18.279	In above
Sundon Res	2 new Actiflo-Carb units, chemical conditioning	46.663	91
Total		136.954	463

Source: Affinity Water

The indicative unit cost of implementing metaldehyde treatment in respect of this uncertainty is shown in Table 18. This is unchanged from our September 2018 Business Plan.

Table 18: Indicative unit cost of implementing metaldehyde treatment

Uncertainty	Linked Outcome	Unit	Indicative Unit Cost Adjustment (£m)	Indicative Total Cost (£m)
Metaldehyde treatment (for up to 463 MI/d)	Supplying high quality water you can trust.	MI/d of deployable output treated	0.296	136.95

Source: Affinity Water

These costs are indicative only. If metaldehyde treatment were required, we would expect to make a further submission to Ofwat to demonstrate that the investment proposed was robust and deliverable, selected after a proper assessment of options and that the option proposed is the best for customers.

It is proposed that any adjustment under this bespoke uncertainty mechanism are trued up in the RCV at the start of the following AMP. If this uncertainty does occur, due to its financial value, confirmation by Ofwat will be required of the agreement of the value to be added to RCV following their assessment of the costs. This will enable the company to fund the cost. This will be required ahead of any significant cost being incurred and may need to be agreed in stages.

We have completed a RoRE assessment as required by section 10.4.3 of the PR19 methodology which is set out in table Table 19 below.

Table 19: RoRE uncertainty mechanism, Metaldehyde treatment

Annual weighting	7%	7%	28%	28%	30%
	FY 2020/21	FY 2021/22	FY 2022/23	FY 2023/24	FY 2024/25
TOTAL Totex by Year with Risk Real, (£m)	10.08	10.08	38.06	38.06	40.67
TOTAL Totex by Year with Risk, (£m)	10.71	10.92	42.09	42.93	46.79

Source: Affinity Water

7.7 Correspondence with regulators following the metaldehyde ban being reversed

The Environment Agency communicated with all water companies on 1st August to advise that Defra intends to retake the decision to ban metaldehyde for outdoor use “as soon as possible” but that timescales are unknown. This represents a cost exposure to our business. The Agency advises that their position is as follows:

- Nothing changes in [their] assumptions for metaldehyde substitution schemes in PR14 (which ends April 2020). They would become business as usual costs from April 2020 onwards;
- Nothing changes in [their] assumptions for metaldehyde substitution schemes in PR19 (which starts April 2020) up until 30 June 2020 and they must be included in Measure Specification Forms;
- After 30 June 2020, metaldehyde substitution schemes MAY need to continue if a new ban is not put in place. [They] do not know this for sure at this point and will issue further guidance as soon as Defra’s position becomes clear.

We received an email from the DWI on 6th August advising that they “consider that it is unwise at this time to continue with the revision of metaldehyde undertakings. Therefore we will call a halt to this until further clarity is available for this situation.” In their email, the DWI noted Defra’s advice, copied below:

“The government has decided to withdraw and review the decision made in December 2018 to restrict the sale and use of metaldehyde products, following concerns raised about the decision-making process. We will retake the decision as swiftly as possible, taking account of the procedural points raised. Our priority is to protect people and the environment, and all decisions on pesticides are always based on the best available science.”

7.8 Conclusion

We confirm we have no metaldehyde specific treatment or substitution costs in our requested allowance.

We provide details of the correspondence we have had with the Environment Agency and the DWI following the metaldehyde ban being overturned

We also represent on the reinstatement of our metaldehyde uncertainty mechanism from our September 2018 Business Plan to address the removal of the metaldehyde ban.

7.9 Supporting documentation

Table 20: Evidence to support our response

Reference	Description	Standalone document
AFW-CE-Appendix C	Communication with the DWI on our metaldehyde undertaking	No
AFW-CE-Appendix E	Letter AW to DWI – August 2018	Yes
AFW-CE-Appendix F	DWI Guidance to Water Companies Metaldehyde	Yes
AFW-CE-Appendix G	Undertaking on Metaldehyde and Pesticides Parameters	Yes

Source: Affinity Water DD response

8 Technical point: AFW.CE.A2- Strategic regional solutions

8.1 Purpose of this chapter

Table 21: Ofwat actions addressed in this section

Action reference	Intervention area
AFW.CE.A2	Strategic regional solutions

Source: Ofwat PR19 draft determination

This section presents additional information on our strategic regional solutions.

As requested, we provide a joint statement on behalf of the All Company Working Group (ACWG). We also provide specific comments in relation to non-DCO schemes, and offer an alternative approach.

8.2 Summary of response

As requested, we provide a joint statement on behalf of the All Company Working Group (ACWG). This has been submitted as an appendix alongside this document. We also provide specific comments in relation to non-DCO schemes, and offer an alternative approach.

8.3 Structure of this information request

- Section 8.4 confirms our understanding of the schemes and costs.
- Section 8.5 summarises the joint statement from the ACWG.
- Section 8.6 provides specific feedback on our DD.
- Section 8.7 confirms alignment with our WRMP.
- Section 8.8 sets out our key conclusions.

8.4 Summary of schemes and costs

Ofwat's has increased the regional allowance for strategic supply solutions.

We confirm that the joint solutions that include Affinity Water represent our understanding of our working group partnerships and funding allocations for each of the schemes. We have checked with working group partners and can also confirm that the costs as set out in Table 3.1 of the DD appendix on strategic regional water resource solutions³⁴ (a copy presented in Table 22) clearly set out our understanding of an appropriate funding allocation for each scheme.

³⁴ Ofwat, PR19 draft determinations: Strategic regional water resource solutions, July 2019.

Table 22: Ofwat’s DD strategic regional solutions funding

Solution Name	Solution Type	Total Cost	Affinity Water allowance
		Max. Development Allowance (£m)	
SESRO	Source	121.7	40.6
Minworth Effluent Reuse	Source	9.0	3.0
South Lincolnshire Reservoir	Source	38.6	19.3
Anglian-Affinity Transfer	Transfer	11.9	6.0
Grand Union Canal Transfer	Transfer	18.0	9.0
Thames-Affinity Transfer	Transfer	10.9	5.5

Source: Ofwat, feeder model “FM_E_WW_strategic-regional_ST_DD”

The timing of expenditure will depend on which schemes progress beyond which gate .We agree with Ofwat’s proposed percentage splits according to gate, provided that the definitions around planning for non-DCO schemes, as outlined in Section 8.6 **Error! Reference source not found.** below, are applied. For the purposes of clarity, the percentage splits contained in the DD³⁵ are as follows:

- Gate 1: 10%
- Gate 2: 15%
- Gate 3: 35%
- Gate 4: 40%

8.5 Joint statement from the All Company Working Group

As required by the action, we have worked collaboratively with the ACWG to submit a Joint Company Statement on the DD principles for strategic schemes. We have submitted this in Appendix D which includes aspects of the DD where further work is required prior to FD (for example, on aspects of the gate timings for non DCO schemes).

The aspects of that statement that are most relevant to our submission are:

- Agreement with the proposed costs and the increase in the number of Gates (to 5) contained within the DD.
- General agreement with the specific activities proposed for Gate 1, with some changes in the language used around levels of design to clarify the nature of the delivery.
- Support for the approach to the gated process and associated governance.
- Clarification of the definition of levels of design for the schemes at each Gate
- A statement on the planning outcomes for non-DCO schemes for Gates 3 to 5, where the joint statement indicates ‘the timescales outlined through gates 3 to 5 might for a conventional planning route would not work if there are any objections to any of the schemes, this is setting aside the other potential challenges that the projects can face’. We have highlighted the specific issues associated with our potential ‘non-DCO’ schemes in the next section.
- A proposal to modify the reconciliation mechanism so that it is revenue reflective, based on the ratio of RCV versus PAYG contained within the financial model for the strategic schemes.

³⁵ Ofwat, *Strategic regional water resource solutions appendix*, July 2019

8.6 Affinity Water specific comments on the DD

We have included the schemes, costs, sharing and majority of the principles contained within the DD, and are committed to working collaboratively with our partners on delivering the schemes. There are two areas for further work :

1. The description of the planning status for Gates 3 and 4 for 'Non-DCO' schemes and clarification around the risks of non-delivery in relation to our WRMP.
2. Proposals relating to changes on the reconciliation mechanism.

We note that Ofwat has proposed the following text for Gates 3 and 4 in relation to non-DCO schemes under Table 4.3. of the 'Strategic Water Resources Solutions' appendix:

- Gate 3: 'For solutions that are not subject to development consent order, develop and submit planning application. Planning application submitted. Public hearing or inquiry completed'.
- Gate 4: 'Non-development consent order solutions: planning permission secured. Procurement completed and land purchased.'

For Affinity Water, this proposal risks both the integrity of our WRMP and increases the chance of non-delivery of the schemes, and hence delivery of resilience to customers, through refusal of planning applications. This risk comprises of four key elements:

1. The planning application route for our schemes is not yet decided, and there are interactions between schemes that mean schemes such as the Thames to Affinity transfer and the Anglian to Affinity transfer may be delivered as part of the SESRO and South Lincolnshire DCO schemes respectively. We could not therefore progress those schemes more rapidly than the DCO schemes, and would therefore regard these schemes as having DCO timing. There is a need to investigate the exact planning route for the GUC transfer. This will be determined as part of the Gate 1 and 2 activities. However, the Deployable Output is only currently planned for 50Ml/d, so it may not qualify as 'nationally significant infrastructure'. This will need to be investigated during Gates 1 and 2.
2. If the transfer schemes are progressed separately from the reservoirs (i.e. different source water is identified, possibly via water trading), then this decision will only be made at the end of Gate 2, in July 2022. These options represent substantial transfer and treatment schemes in themselves, with potential impacts on protected sites (as noted by Natural England in their representations to our revised draft WRMP). It is not possible to deliver an ESIA and associated planning documents within the 9 months between the Gate 2 decision point and the completion of Gate 3, unless ESIA investigations were started prior to the Gate 2 decision. The schemes will need to go through ESIA scoping to confirm the environmental surveys that are required, and there will be no opportunity to carry out the seasonally based field studies that will be required to deliver the ESIA in that timescale.
3. The GUC and Thames to Affinity Transfer options will require abstraction licences and environmental permits, which should only be sought once the Gate 2 Concept Design is complete. This process will again take more than 9 months. It would not be prudent to seek planning permission before abstraction licence negotiations are substantially complete, as changes to abstraction arrangements would fundamentally affect scheme design and hence the validity of the planning application.
4. Within our WRMP adaptive planning framework we have indicated that Spring/summer 2023 represents the key decision point where we determine if there is a robust 'case of need' for progressing with a strategic option. We have also indicated that we are only likely to require one strategic scheme in the medium term, so we will need to make an either/or decision based on consistent information across the schemes at that point. Attempting to accelerate one scheme ahead of the rest because it falls into the 'non-DCO' category would therefore be contradictory to the WRMP, and could lead to inefficient use of customers' money.

Based on the above we submit the following two representations in relation to scheme gate timings:

- As noted in the All Company Working Group document, all of our schemes should be considered as following the timing for DCO schemes at this stage. This includes the transfer options, as they are likely to form part of a larger DCO scheme.
- The wording of the 'non-DCO' objectives for Gate 3 and Gate 4 are likely to need to be amended for the GUC transfer option if it falls into the 'non-DCO' category following Gate 1 investigations. For this case, the type of outputs that might be expected in relation to planning are:
- Gate 3: Carry out pre-planning investigations, ESIA scoping and preliminary licencing discussions to agree the scope of the planning application and associated documents.
- Gate 4: Submit planning application, ESIA and licence applications.

These revised definitions are also more reflective of the proposed funding structure, as the majority of investigation costs for schemes are incurred during the ESIA and preparation of the planning documentation. Under the DD proposals, there is a mis-match between likely expenditure and funding allocations across Gates 3 and 4.

The proposals for changing to the reconciliation mechanism are common across all companies, and are therefore presented within the Joint Company Statement (Appendix D). Within the ACWG document it is proposed that costs are reconciled using the same RCV/PAYG basis as their runoff rate within the financial model. For our Strategic Investigation Schemes we have taken the approach that those schemes identified as being currently preferred within our WRMP19 should be capitalised, as they are more likely to represent schemes that are progressed to construction, and that the remaining AMP7 strategic scheme expenditure should be accounted for as opex, as this is reflective of the scale of investigation expenditure that we currently anticipate is unlikely to lead to a constructed asset in the short to medium term. We have applied these principles within our financial modelling. This results in the following ratios for the reconciliation mechanism:

- Costs counted as RCV: SESRO plus Thames to Affinity Transfer. Allowance of £46.1m, or 55% of the total strategic scheme costs.
- Costs counted as PAYG: remaining schemes, Allowance of £37.3m, or 45% of the total strategic scheme costs.

Based on the above we therefore propose a 55%:45% ratio of RCV:PAYG in the reconciliation mechanism. These ratios will be changed to reflect actual costs on schemes, but we propose that the principle of capitalising the investigations associated with the preferred option is kept for the mechanism outturn.

8.7 Delivery against the WRMP requirements

As noted previously, we fully support the collaborative approach and consider that this is the most cost-effective way of providing the drought resilience described in our WRMP to customers. The forecast risks in our WRMP means we do need to have a decision on a preferred strategic option in Spring/Summer 2023. This reconciles well with the proposed Gate 3 timing in the DD, but as we are in a relatively vulnerable position we may face water resources risks if there are any significant delays to the start of the Strategic Scheme investigations.

We therefore welcome the approach outlined in the DD where delays and re-allocations can be handled in a flexible way.

8.8 Conclusion

As requested, we provide a joint statement on behalf of the All Company Working Group (ACWG). This has been submitted as Appendix D alongside this document. We also provide specific comments in relation to non-DCO schemes, and offer an alternative approach.

8.9 Supporting documentation

Table 23: Evidence to support our response

Reference	Description	Standalone document
AFW-CE-Appendix D	Joint Company Statement	Yes

Source: Affinity Water DD response

Appendix A Evaluation of relative leakage performance

A.1 Purpose of this section

This section sets out our evaluation of relative leakage performance as part of our representation on the efficient costs of reducing leakage (section 4).

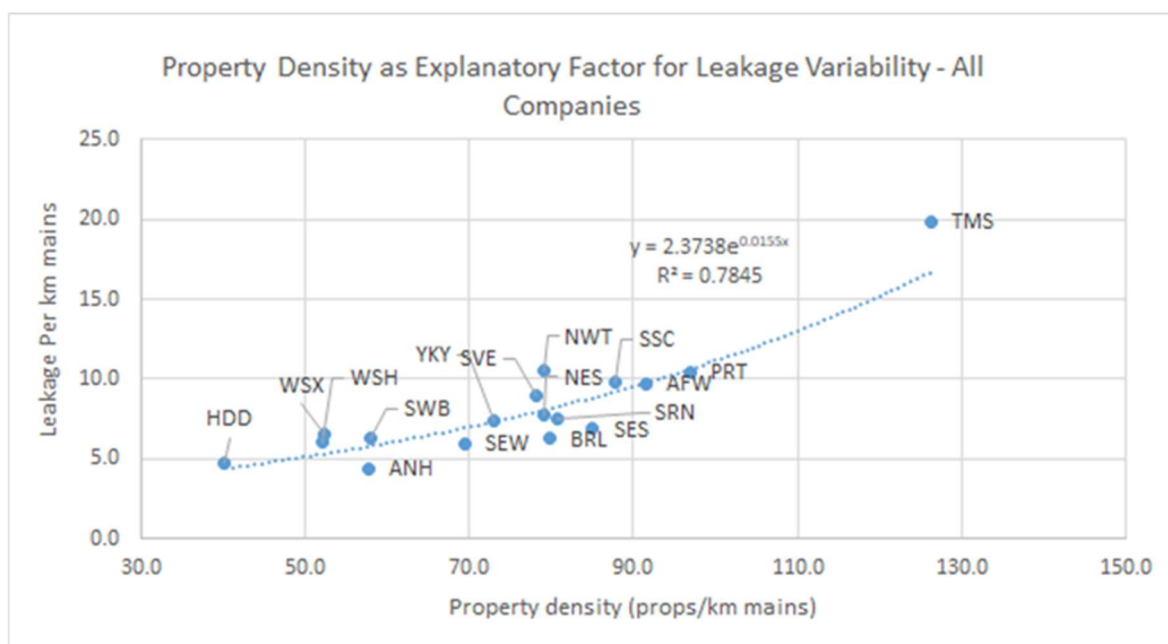
A.2 Supporting analysis

To understand our position in relation to the rest of the industry efficiency for leakage control, we carried out an analysis based on the projected end of AMP6 target position for all water companies. To date, leakage has been expressed in terms of both leakage per property and leakage per kilometre of mains as scaling factors. We carried out a statistical analysis to determine which of these scale factors is stronger, and whether that has any implications to the assessment of upper quartile performance.

A simple log-log regression analysis of the two scale factors (leakage versus number of properties and total mains length) suggests that, when the factors are both incorporated into the model, then number of properties is highly significant, but there is a very low significance for kilometres of mains. This would suggest that mains length only has apparent significance as a single scale factor because of its auto-correlation with number of properties. This is also demonstrated by multiple linear regression analysis, where properties have a t statistic of 5.8 (P value <0.0001) compare with a t statistic of -0.07 for mains length (p value of 0.94) in the same model.

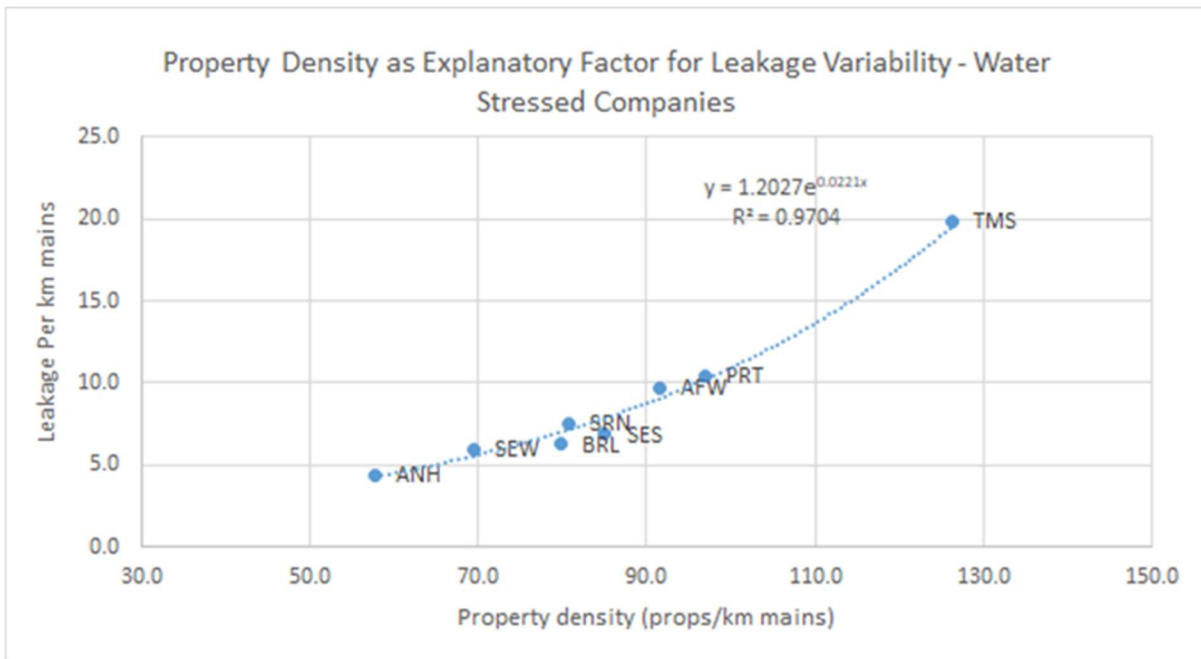
This difference can be readily shown in graphical format. Figure 6 shows the explanatory power of property density for leakage when it is expressed on a per km basis. This demonstrates a high degree of correlation – i.e. most of the variability that is shown between water companies when leakage is expressed on a per kilometre of mains basis can actually be explained by relative property density. This predictive power becomes even stronger once the influence of water stress on AMP6 leakage targets is considered (see Figure 7).

Figure 6: property density as an explanatory factor for leakage variability – all companies



Source: Affinity Water

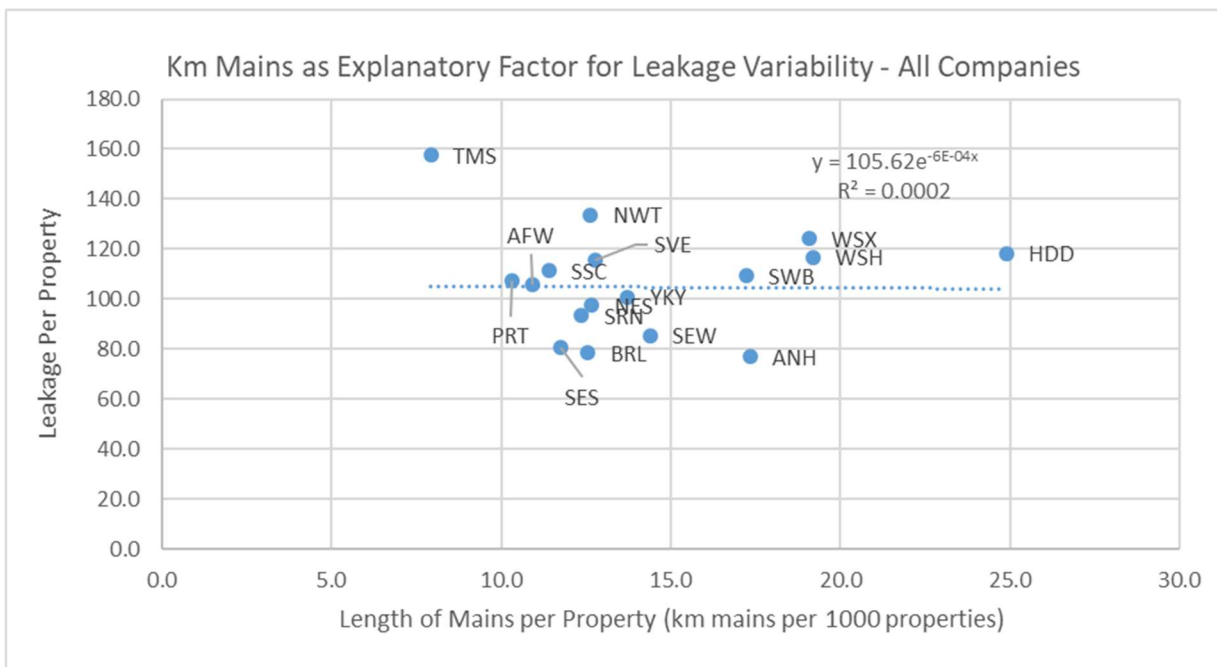
Figure 7: property density as an explanatory factor for leakage variability – water stressed companies



Source: Affinity Water

Conversely, the length of mains per property has no explanatory power for leakage expressed on a per property basis, as demonstrated in Figure 8. This demonstrates that leakage performance efficiency is only meaningful when expressed on a per property basis, and the mains length per property has no explanatory power for the variability seen between companies.

Figure 8: km mains as an explanatory factor for leakage variability – all companies

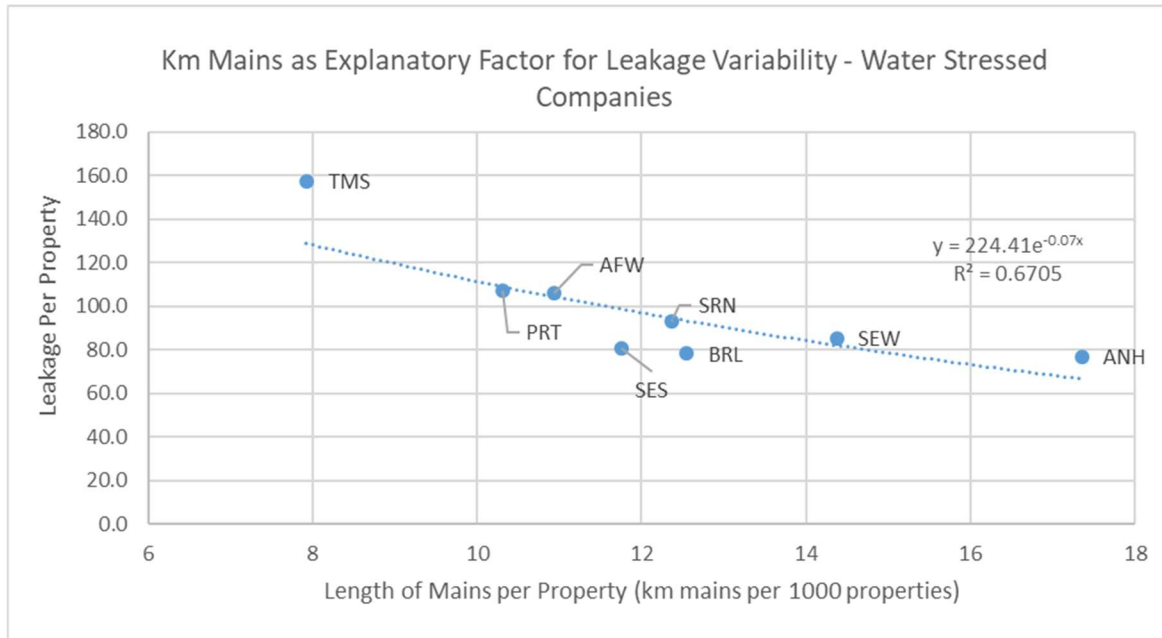


Source: Affinity Water

Figure 9 demonstrates that there is much less variability between companies when leakage performance is considered for those companies that are in water stressed areas and hence have had an incentive to

reduce leakage prior to the current round of (PR19) business planning. Bristol Water and Sutton & East Surrey Water are slightly above average. South East Water, Southern Water, Portsmouth Water, Thames Water and ourselves are slightly below average.

Figure 9: km mains as an explanatory factor for leakage variability – water stressed companies



Source: Affinity Water

Significantly, as shown in Figure 11, if the influence of mains length per property is only considered for water stressed companies, there is a significant *negative* correlation with leakage per property. This reconciles with our anecdotal understanding of the difficulties in controlling leakage, as it suggests that the underlying nature and complexity of the mains system changes as property density increases, which makes leakage control more difficult. In other words, simply normalising for property numbers is not sufficient to evaluate relative leakage performance, as there may be a second order correlation with property density as mains systems become more congested and issues such as sharing of supplies on flats makes the detection and repair of customer side leakage more difficult.

The separation of water stressed from non-water stressed companies demonstrates that non-water stressed companies are increasing the scatter, particularly in the lower property density part of the graph, which is increasing the apparent variability in performance. Our analysis of water stressed companies indicates that our performance at the end of AMP6 is around average, which is the same if leakage is simply expressed on a per property basis. However, importantly, the difference between average and upper quartile performance is relatively small, in the order of 10% if only 'water stressed' companies are considered.

Our analysis concludes:

- Nearly all of the variability in expected leakage performance (c. 97%) can be explained by property density.
- Absolute leakage in MI/d is almost entirely driven by the number of properties.
- Separating companies in water stress from those who have a surplus may be beneficial to avoid skewing the results.

We would welcome the opportunity to work with Ofwat on their approach to upper quartile assessment in the future.

Appendix B Background to WINEP uncertainty in our East supply region

B.1 Purpose of this section

We have identified a specific risk relating to a potential sustainability change in our Brett region, where we consider the uncertainty as such that additional protection is needed. We represent on alternative regulatory mechanisms for delivering this uncertain investment. This representation can be found in section 6 of this document.

We provide further background to this investment in this Appendix.

B.2 Background to the scheme

The potential sustainability change is 15-20 MI/d³⁶. However, we will not understand the exact size, or whether a change is needed at all until we have completed our investigation into the impact of abstraction on the River Brett. The investigation and options appraisal will be completed by 31 March 2021. Until we understand the scale of the issue, the solution cannot be fully defined, although we can and have been considering the options³⁷. We appended our initial options appraisal with our revised plan, and have included this again with the representation (AFW. Technical Issues.WRZ8 1).

The possibility of a significantly larger sustainability change was raised by the Environment Agency late in the business plan preparation process (during summer 2018), and too late for the scheme to be included as an 'amber' scheme in the WINEP list.

Our initial options appraisal concluded that a desalination plant would be the only viable option that could be delivered in the time available for a 15-20MI/d change. The change is not accounted for in our WRMP as the Environment Agency guidance was not to include items not included in the WINEP list. A change of sufficient scale to trigger an additional replacement water scheme would require us to prepare a revised WRMP to address the change in our East Region in order to account for the change, and we would consider all available options through our WINEP optioneering process if this were to occur.

Our plan also includes an 'amber' change of 2.6 MI/d in our WINEP for the sources in our East supply region (WINEP reference 7AF10008). To mitigate the 2.6 MI/d potential change, we have agreed to revert from the current 30:70 share to the original 50:50 share with Anglian Water for water taken from Ardleigh³⁸. The change at Ardleigh increases our average deployable output by 5.3 MI/d. (This is included in available headroom for the zone in our draft final WRMP.) The new arrangement will not be available until 2025, a few months after we would need to make any sustainability change, which means we could carry additional service risk for a few months.

We also need to cover a flow support condition in our licence (at 2.16 MI/d) which we did not account for in the deployable output calculations, because there is currently no flow trigger associated with this

³⁶ For further details, see Affinity Water June 2019, "Draft final water resources management plan" p125, paragraph 6.6.2. The maximum reduction is 15.91 MI/d for dry year average and 21.98 MI/d at peak. Although the maximum licence change is higher at peak, our peak surplus is also significantly higher. Hence, the maximum impact would be felt at average rather than peak.

³⁷ We included an initial options appraisal with our revised plan. Source: Affinity Water, March 2019: "AFW Aligning Risk and Return Appendices" p91

³⁸ The impact of the change is included in both companies' plans:

Anglian Water, April 2019, "Further information supporting the water resources management plan" p8.
Affinity Water June 2019, "Draft final water resources management plan" p125, paragraph 6.6.4.

Anglian Water and Affinity Water own Ardleigh Reservoir jointly (with a 50% share each). Affinity Water had an agreement with Anglian Water that it would reduce its share, which we have now agreed to revise back to the original allocation because Affinity Water has a potential need.

condition³⁹. As part of the AMP7 NEP investigation, we will work with the Environment Agency to establish an appropriate trigger for this augmentation scheme, given that it has only been requested once in the past, during the summer of 2018. It is not clear at this stage whether this would be included in the 15.91 Ml/d potential maximum change for dry year average, the maximum change is higher for peak) or separate from it.

If a sustainability change were required, two other companies would potentially be impacted. We are likely to have the largest change of the three companies.

- Essex and Suffolk Water noted in its dWRMP that there were concerns about the impact of abstraction on the River Brett and that an investigation was agreed that would also involve Affinity Water, Anglian Water and the Environment Agency. It did not assume a change in its draft plan but did quantify the possible maximum licence change at 7.16 Ml/d⁴⁰. The company revised its position in its statement of response, assuming a potential change of 4.5 Ml/d⁴¹. A change in available deployable output would impact its actual level of service and resilience to some extent.
- There will also be a potential impact for Anglian Water. However, we cannot quantify this as Anglian Water's published WRMP and statement of response do not state the potential impacts on individual licences.

When the possibility of a larger change was put forward, we explored with WRE whether a regional option, such as a strategic transfer, would be possible. At time of writing neither Anglian nor Essex and Suffolk Water are able to provide a bulk supply that would be available in average conditions, nor in all years for peak. Hence, at time of writing we do not have a reliable bulk supply option. We would revisit the possibility of a regional transfer through our WINEP optioneering process if a sustainability change is required and this triggers the need to provide replacement water.

The Environment Agency stated in its response to Anglian Water's WRMP that Anglian should work with neighbouring companies including Affinity Water to confirm the impact of the latest version on WINEP and on their plans and if this affects options for transfers and trading water, and Anglian committed to doing so with respect to the sustainability change in our East supply region⁴². We are, and continue to be committed to a regional approach and will continue to work with The Environment Agency, Anglian Water and Essex and Suffolk Water through WRE.

³⁹ For further details, see Affinity Water June 2019, "Draft final water resources management plan" p44, paragraph 3.4.29.

⁴⁰ Essex and Suffolk Water, March 2018 "Draft water resources management plan" p89, p287

⁴¹ Essex and Suffolk Water, September 2018 "Draft water resources management plan 2019: Consultation statement of response" p10.

⁴² Anglian Water, 2018 "Revised dWRMP 2019: Statement of response" p18

Appendix C Communication with the DWI on our metaldehyde undertaking

From: Lintott, Eddie [REDACTED]
Sent: Tuesday, August 6, 2019 5:53:07 PM
To: 'Knight, Caroline' [REDACTED]
Cc: Willis, Kate [REDACTED]; Piper, Sean [REDACTED]; Waller, Fiona [REDACTED]; Monod, Tim [REDACTED]; Smith, Julie [REDACTED]; Leggatt, Alister [REDACTED]; Hopkins, Richard [REDACTED]; Kent, John [REDACTED]; Holman, Nancy [REDACTED]; Walsh, Pauline [REDACTED]
Subject: RE: Metaldehyde undertaking - post-JR decision

Caroline

Thank you for your e-mail. We will continue to carry out the actions required by our current Undertaking and await any future developments.

Eddie

Eddie Lintott

[REDACTED]

Affinity Water Ltd
Tambin Way, Hatfield, Hertfordshire AL10 9E2

affinitywater.co.uk || facebook.com/affinitywater || twitter.com/affinitywater || linkedin.com/company/affinity-water

From: Knight, Caroline [REDACTED]
Sent: 06 August 2019 15:46
To: Walsh, Pauline [REDACTED]; Lintott, Eddie [REDACTED]
Cc: Willis, Kate [REDACTED]; Piper, Sean [REDACTED]
Subject: Metaldehyde undertaking - post-JR decision

-- EXTERNAL EMAIL --Think Phishing--

Hi

As you are no doubt aware a Judicial Review of the metaldehyde ban last week led to the proposed ban on use in the open environment being overturned. DEFRA has provided the following:

“The government has decided to withdraw and review the decision made in December 2018 to restrict the sale and use of metaldehyde products, following concerns raised about the decision-making process. We will retake the decision as swiftly as possible, taking account of the procedural points raised. Our priority is to protect people and the environment, and all decisions on pesticides are always based on the best available science.”

As a result we consider that it is unwise at this time to continue with the revision of metaldehyde undertakings. Therefore we will call a halt to this until further clarity is available for this situation.

I would take this opportunity to remind you that current undertakings remain in place for the time being. If you have any queries please do not hesitate to contact me or Milo.

Caroline Knight

[REDACTED]

Drinking Water Inspectorate

[REDACTED]

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Appendix D Joint Company Statement

This statement is confidential and is provided separately.

Appendix E Letter AW to DWI – August 2018

This appendix is provided separately.

Appendix F DWI Guidance to Water Companies

Metaldehyde

This appendix is provided separately.

Appendix G Undertaking on Metaldehyde and Pesticides Parameters

This appendix is provided separately.